

# How the Doughnut Hole Affects Prescription Fulfillment Decisions Involving Cardiovascular Medications For Medicare Part D Enrollees

As Part D enrollees approach their coverage limits, their decisions are significantly affected through the doughnut hole period

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## ABSTRACT

**PURPOSE:** The unsupplemented Medicare Part D prescription drug benefit does not provide coverage for stand-alone prescription drug plan (PDP) beneficiaries within the coverage gap (often called a doughnut hole) in Medicare Part D.

**DESIGN:** We evaluated whether the doughnut hole was a factor in altering prescription fulfillment decisions regarding cardiovascular medications in Part D beneficiaries.

**METHODOLOGY:** We investigated 500 Medicare Part D members' pharmacy adjudication records (all prescription transactions) for one full year from a blinded, national Part D HMO pharmacy database. We selected 250 stand-alone PDP beneficiaries without coverage in the doughnut hole and 250 Medicare Advantage-Prescription Drug (MA-PD) plan beneficiaries whose prescription coverage did not lapse in the doughnut hole by way of random stratified sampling and analyzed the records using multinomial logistic regression for their prescription fulfillment decision endpoints of filling, delaying, switching, or stopping their medications.

**FINDINGS:** Of stand-alone PDP beneficiaries, 16.8% delayed medi-

cation, 12.4% switched medication, 10.4% both delayed and stopped medication, and 9.6% stopped at least one medication. Part D enrollees who entered the doughnut hole are 1.5 times as likely to delay their cardiovascular prescriptions (OR = 1.54, 95% CI 0.924, 2.562), 1.5 times as likely to switch and delay their cardiovascular prescriptions (OR = 1.52, 95% CI 0.532, 4.332), and 2.3 times as likely to delay and stop their cardiovascular prescriptions than beneficiaries with coverage through the doughnut hole period (OR = 2.30, 95% CI 1.134, 4.673).

**CONCLUSIONS:** For cardiovascular medications, the presence of a doughnut hole affects the prescription fulfillment decisions made by Part D beneficiaries.

## INTRODUCTION

Section 101 of Title 1 of the 2003 Medicare Prescription Drug, Improvement, and Modernization Act (MMA) provides a prescription drug benefit program that offers Medicare recipients an option to enroll in prescription drug coverage, known as Medicare Part D (CMS 2007). Medicare Part D is administered through commercial insurance carriers as either a stand-alone prescription drug plan (PDP) or a Medicare Advantage (Part C) Prescription Drug Plan

(MA-PD). Before this program, Medicare covered no prescription medications unless the medications were provided under strict guidelines associated with Medicare Part A or B coverage or as part of services offered by commercial Part C Medicare Advantage plans. Nearly 26 million Medicare beneficiaries are enrolled in Part D plans, of whom two thirds are in PDPs (Kaiser Family Foundation 2009). Under Part D, enrollees must pay 100% of the cost of their drugs in the coverage gap (often called the doughnut hole) which will begin after an enrollee incurs \$2,830 in total drug spending in 2010. Catastrophic coverage begins when an enrollee has spent \$4,550 out of pocket or has incurred \$6,440 in total drug costs under the PDP benefit design (Kaiser Family Foundation 2009). This particular Part D plan in 2006 included a \$250 deductible, with the beneficiary responsible for a coinsurance payment of 25 percent until total drug spending equals \$2,250. Having reached \$2,250 in drug expenditure, the member is responsible for 100 percent of additional costs until \$5,100 in total drug expenditures is incurred with a maximum \$3,600 of out-of-pocket expenses. This gap in coverage is commonly referred to as the doughnut hole.

The doughnut hole may alter prescription fulfillments since copayments are suddenly replaced by high out-of-pocket costs. Several studies

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suggest that increasing costs to patients result in alterations of patients' prescription fulfillment decisions (Gellad et al 2006, Gibson et al 2005, Soumerai et al 2006, Goldman et al 2004, Joyce et al 2002, Huskamp et al 2005, Cox et al 2001, Stuart et al 2005, Rector et al 2004).

It is estimated that 22% of full-year Part D enrollees reached the doughnut hole in 2007. It appears that 50% of Part D enrollees who reached the coverage gap did so by the end of August.

Of those who reached the coverage gap, 20% either stopped taking a medication in that drug class, skipped doses, or switched to a different medication in that class (Hoadley et al 2007).

Medicare beneficiaries with diabetes were more likely to reach the doughnut hole than those with hypertension, and they reached it sooner (Hoadley et al 2007).

Hoadley et al showed that patients with more than one chronic illness were much more likely to reach the doughnut hole than patients with only one chronic illness.

Patients with multiple comorbid diseases will likely take more medications, and are on a faster track towards reaching the doughnut hole.

A concern with the Part D program is that out-of-pocket drug costs are already highest among the elderly, with the average senior taking at least 6 medications (Okunade 2006).

The following research investigates the relationship between Part D enrollees who had a prescription claim for a drug in the cardiovascular therapeutic category and the presence of the doughnut hole on their Part D PDP during 2006.

The objective of this study is to determine whether the doughnut hole influences utilization of cardiovascular medications in a targeted sample of 500 Part D beneficiaries from a national Part D PDP and health maintenance organization (HMO).

## METHODS

### Setting

Data for this retrospective case control study were obtained from a national Part D benefit plan's pharmacy administrator by way of its prescription-tracking database. These are longitudinal records on 500 Part D participants, whose identifying characteristics were removed for HIPAA compliance, with actual monthly prescription dispensing as well as age, gender, number of medications, type of medication, and disease classifications. The HMO includes a nationally recognized Part D prescription plan with members in all 50 states. The HMO is unnamed and underdescribed in this analysis because of the sensitivity and proprietary nature of the plan's Part D prescription membership and the drug utilization of its members. These data were obtained from the pharmacy prescription-tracking database. The database tracks members' drug expenditures from retail and mail order pharmacy adjudications. Each prescription of each HMO member is followed monthly throughout 2006 by way of the health plan's pharmacy adjudication database. This culminates in an analysis of the prescription decisions by members over one full year of enrollment. The research is conducted through the coding of prescription fulfillment decisions (filling prescriptions or doing something other than filling a prescription) into four dependent variable categories: filled, switched, delayed, and stopped. Enrollees are analyzed for the effect of the independent variable — the doughnut hole. A group of MA-PD members provides a control group. This control is ideal since similarly enrolled Part D members are selected for their enhanced benefit coverage (prescription drug coverage that includes coverage through the doughnut hole), then randomly selected, as is the case for the primary study group (members with stand-alone Medicare PDP benefits who do

not have coverage through the doughnut hole).

### Sampling procedures

The sample consisted of all members who had exceeded \$2,250 in drug spending, but was first stratified for either PDP or MA-PD plans. The 500 Part D beneficiaries were randomly selected, age 62 and older, utilized at least one cardiovascular medication as defined by American Hospital Formulary Service Therapeutic Category 24:00 — cardiovascular within the HMO database, had entered the doughnut hole, and were active participants in the insurer's PDP or MA-PD. The therapeutic categories in the database for the cardiovascular class included prescription medications for angina, arrhythmia, blood pressure, congestive heart failure, cholesterol, circulation, pulmonary arterial hypertension, and unassigned, such as the ezetimibe and simvastatin combination. The number of prescription medications possible from all categories is approximately 150.

The 500 Part D beneficiaries were subsequently stratified by the benefit designs offered by the insurer (stand-alone PDP or MA-PD), and a random sample was drawn from each stratum. The sample size of 500 is powered for a population of 9,000,000, and has a 5% margin of error and a 95% confidence interval. There were 250 PDP members in the experimental group and 250 MA-PD members in the control group. We excluded dually eligible members — members with additional Medicaid coverage that included an additional drug coverage benefit that would confound drug fulfillment decisions being reviewed in this research. An individual's coverage plan is clearly identified in the pharmacy database, as is the member's utilization of cardiovascular medications. Members with less than \$2,250 in annual drug expenditures were excluded from the analysis because they failed to reach the doughnut hole — the in-

**TABLE 1****Descriptive statistics for both study groups (PDP members and MA-PD members)**

Descriptive statistics are displayed for the 500 study participants. The information is separated into the groups of all study participants (n = 500), those experiencing the doughnut hole (n=250), and those members who did NOT experience the doughnut hole (n=250). Descriptive information for the covariates of age, gender, number of different medications, number of cardiovascular medications, and days spent in the doughnut hole is displayed with associated SDs.

<b>All study participants n = 500</b>			
Gender			
Male	221 (44.2%)		
Female	279 (55.8%)		
	<b>Mean</b>	<b>Std. deviation (SD)</b>	<b>Median</b>
Age	75.92	7.247	76
Number of different meds	16.74	6.74	15.5
Number of CV meds	4.7	2.469	4
<b>Stand-alone PDP members n = 250</b>			
Gender			
Male	112 (44.8%)		
Female	138 (55.2%)		
	<b>Mean</b>	<b>Std. deviation (SD)</b>	<b>Median</b>
Age	76.01	7.523	76
Number of different meds	17.12	6.986	16
Number of CV meds	4.68	2.43	4
Days spent in hole	150.79	42.96	154
Doughnut hole (Y/N)	1	0	1
<b>MA-PD members n = 250</b>			
Gender			
Male	109 (43.6%)		
Female	141 (56.4%)		
	<b>Mean</b>	<b>Std. deviation (SD)</b>	<b>Median</b>
Age	75.83	6.973	76
Number of different meds	16.37	6.476	15
Number of CV meds	4.72	2.513	4
Days spent in hole	0		
Doughnut hole (Y/N)	2	0	2

\*Mean days spent in the doughnut hole is statistically significant between the groups, p=.002.

dependent variable of interest. The participants were divided into PDP and MA-PD groups and then randomly selected. Patients were fol-

lowed through the phases of the benefit (pre-doughnut hole, doughnut hole, and catastrophic).

Patient information was blinded; we disclose no patient names in this research.

### Outcome measures

The dependent variable in this retrospective cohort study is the decisions of Part D enrollees concerning each of their prescriptions. This decision outcome is characterized as distinct fulfillment adjudications of enrollees' prescriptions as reviewed from retrospective prescription fulfillment records for each month of 2006 for each participant. The dependent variable is the chosen prescription fulfillment decision of the enrollee based on that person's prescription fulfillment for each medication. Each member's prescriptions were reviewed monthly for whether the member filled, switched, delayed, or stopped the medication. These were defined as:

**Filled Rx:** Fulfillment of at least a second prescription within 15 days after the days supplied for the medication had expired.

**Switched Rx:** Fulfillment of a prescription within 15 days for use on the same illness after two previous identical prescriptions were fulfilled.

**Delayed Rx:** Had at least a second prescription, with a minimum 45-day gap after the days' supply of medication had expired.

**Stopped Rx:** Lack of fulfillment of at least a second prescription for greater than 60 days after the days' supply of medication had expired.

This allows eight coding possibilities: filled, switched, delayed, stopped, switched and delayed, switched and stopped, delayed and stopped, or switched, stopped, and delayed. The independent variable is the dichotomous variable of "experiencing the doughnut hole" (Y/N), measured by the point at which a refill or new prescription requires full cash payment. The enrollee had a copayment or 25

percent coinsurance in the pre-doughnut hole phase. The doughnut hole is represented as the subsequent time-period after this threshold until catastrophic coverage is reached. The doughnut hole time-period will vary by member.

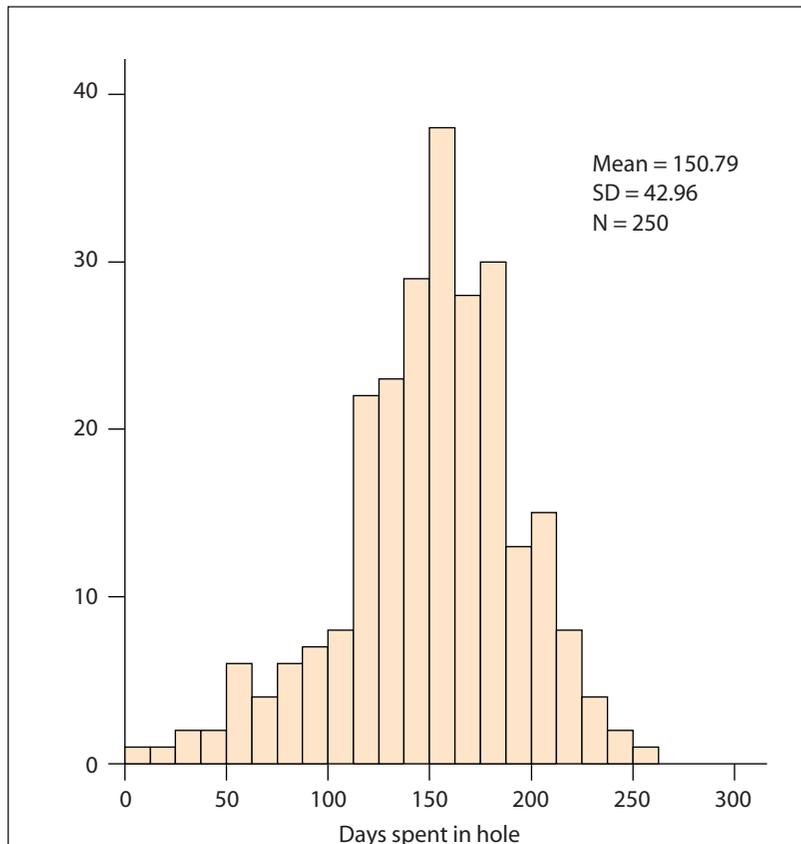
The next set of variables is the contributory factors or covariates of age, gender, and number and type of medication. There was no information on income level or communication between patient and physician.

### Statistical analysis

A single researcher collected and analyzed the data, patient by patient. He manually transferred data from a spreadsheet into SPSS, a statistical software package, to perform multinomial logistic regression. An alpha level of .05 was used for all statistical tests. Descriptive statistics characterize the data available from the database and present their frequencies, means, and standard deviations (SD). The dependent variable evaluation is the prescription adjudication activity tracked for each prescription. This is a nominal variable since no true rank order exists. The variable could be a binary outcome expressed as a filled prescription versus "other than filled," e.g. switched or stopped. Multivariate logistic regression tests the theory of the relationship between various predictor variables (significant at a univariate level) and the outcome variable of interest (the activity of the prescription medication regimens). Stepwise regression is used to test covariate suggested influence. The main covariates of the study are age, gender, number of medications, and therapeutic classes.

### RESULTS

The mean age for both groups was 75.9 +/- 7.25 SD years. The median was 76 years. In the stand-alone PDP (experienced the doughnut hole, n = 250), 44.8% were male and 55.2% were female. Of the MA-PD beneficiaries (n=250), 43.6% were male and



**FIGURE 1** Days spent in doughnut hole by HMO PDP members taking cardiovascular medications

The graph displays the distribution of days spent in the doughnut hole by the 250 members (y axis) of the HMO Part D prescription drug plan (doughnut hole experiencing group). The mean was 150.8 days +/- 42.96 SD.

56.4% were female. Beneficiaries who experienced the doughnut hole had a mean age of 76 +/- 7.52 SD years, while the mean age of the MA-PD beneficiaries was 75.8 +/- 6.97 SD years (See Table 1). Both study groups had a mean of 4.7 cardiovascular medications used within one year. The means differed little by disease state. Stand-alone PDP beneficiaries averaged 17.1 different medications +/- 6.97 SD, while MA-PD beneficiaries averaged 16.4 +/- 6.48 SD. Our results show that 81.2% of MA-PD beneficiaries had up to 6 cardiovascular medications in their annual drug portfolio compared with 76.8% of stand-alone PDP members.

Stand-alone PDP beneficiaries on

average spent 150.8 days +/- 42.96 SD in the doughnut hole (See Figure 1). The median number of days in the doughnut hole was 154. The MA-PD beneficiaries, by definition, experienced 0 days in the doughnut hole. A total of 56% (140 of 250) stand-alone PDP beneficiaries spent 5 or 6 months in the doughnut hole, while 24% spent 7 months or more there. A total of 263 (52.6%) beneficiaries filled all of their cardiovascular prescriptions for the full year study period at regularly scheduled refill intervals. A total of 237 (47.4%) participants chose to alter their cardiovascular prescription during the doughnut hole through a fulfillment behavior of other than filling

(i.e., switching, delaying, stopping, or combination). Of the 237 participants, 136 (57.4%) were in the stand-alone PDP group. Within the stand-alone PDP group, 54.4% of beneficiaries decided to alter their cardiovascular medication prescriptions compared to 40.4% in the MA-PD group.

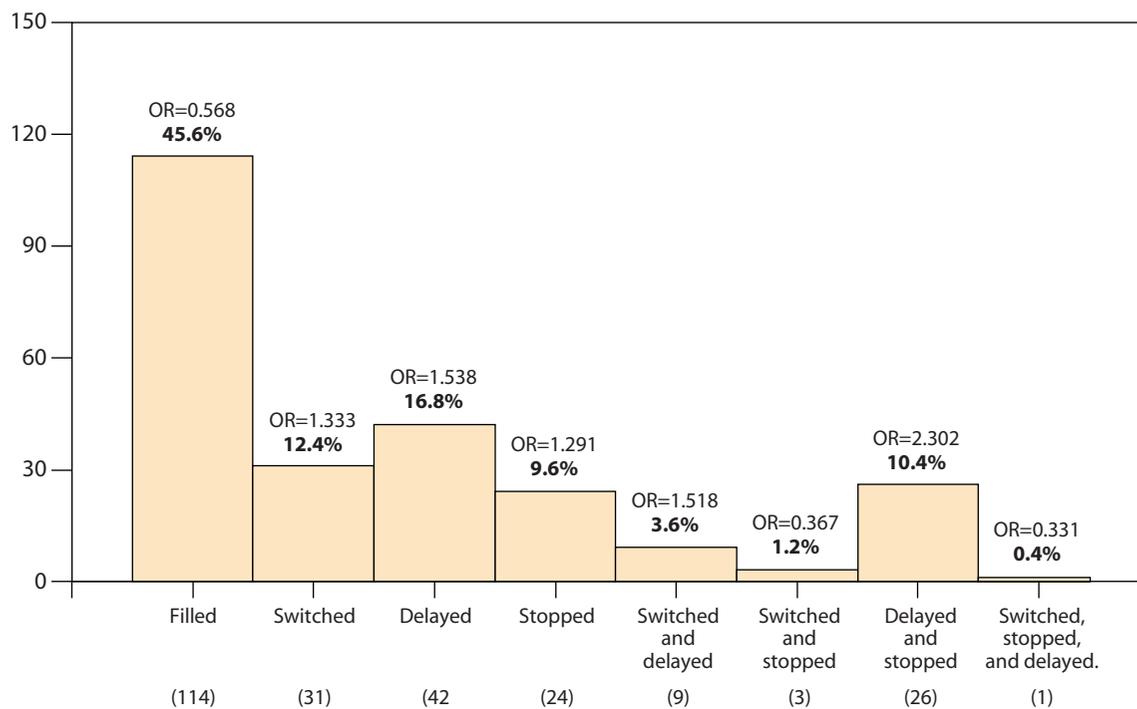
The 4 highest odds ratios demonstrated that beneficiaries who experienced the doughnut hole were 1.5 times as likely to delay their cardiovascular prescriptions (OR = 1.54, 95% CI 0.924, 2.562), 1.5 times as likely to switch and delay their cardiovascular prescriptions (OR = 1.52, 95% CI 0.532, 4.332), and 2.3 times as likely to delay and stop their cardiovascular prescriptions than beneficiaries with coverage through the

doughnut hole period (OR = 2.30, 95% CI 1.134, 4.673) (See Figure 2). Stand-alone PDP beneficiaries are 1.8 times as likely to do something other than fill their cardiovascular prescription than are MA-PD beneficiaries (OR = 1.76, 95% CI 1.234, 2.509).

The number of participants in the stand-alone PDP group who filled their prescriptions throughout the doughnut hole was 114, compared to 149 in the MA-PD group. The most frequent decision by stand-alone PDP beneficiaries faced with a decision on prescription fulfillment was to fill their cardiovascular prescriptions, 45.6% compared with the MA-PD group's higher fill rate of 59.6%. In the PDP group, 16.8% delayed their cardiovascular medications,

12.4% switched to a different medication (typically a generic version), 10.4% both delayed and stopped, and 9.6% stopped one or more cardiovascular medications. Both study groups show 5% or fewer rates of occurrences in stopping, switching and delaying, switching and stopping, delaying, stopping, and switching cardiovascular prescription medications. For the doughnut hole beneficiaries, their percentage for delaying and stopping (10.4%) was dramatically higher than the MA-PD group. This particular fulfillment behavior is more than twice the rate for MA-PD beneficiaries.

A multinomial logistic regression model demonstrates that age and gender are not significant contributors whether a member alters pre-



**FIGURE 2 Prescription fulfillment behavior frequencies of HMO PDP members with cardiovascular medications**

Prescription fulfillment behavior frequencies are shown for members (y axis) taking cardiovascular medications and experiencing the doughnut hole. Percentages are shown for each type of behavior. Odds ratios (OR) are displayed for each classification of finalized cumulative prescription decisions made by the HMO PDP members, 95% CI.

**TABLE 2****Multinomial regression for prescription fulfillment or not (Y/N) (n=500)**

This table displays the findings of a multinomial logistic regression model. The model displays the predictive utility of covariates of age, gender, number of classes of medications, number of medications, and days spent in the doughnut hole regarding whether a prescription is filled — or some other prescription fulfillment behavior. Prescription fulfillment behaviors are categorized as filling a prescription or doing something other than filling the prescription, i.e., switching, delaying, or stopping that prescription. Reference category is filled.

Rx fulfillment or not (n=500) (a)								95% confidence interval for Exp(B)	
		B	Std. error	Wald	df	Sig.	Exp(B)	Lower bound	Upper bound
Either switched, stopped, or delayed	Intercept	-2.753	1.087	6.416	1	.011			
	Age	.012	.013	.758	1	.384	1.012	.986	1.038
	Gender	-.034	.156	.047	1	.829	.967	.713	1.312
	Number of different medications	.008	.016	.236	1	.627	1.008	.977	1.040
	Number of CV medications	.293	.047	38.140	1	.000	1.340	1.221	1.471
	Days spent in hole	.004	.003	1.844	1	.174	1.004	.998	1.011

(a) The reference category is: Filled.

scription fulfillment behavior or not (Table 2). Age and gender are not significant contributors to filling or not filling of all cardiovascular prescriptions,  $p=0.384$  and  $p=0.829$ , respectively. The number of medications a person is prescribed is not predictive of significantly contributing to a decision to not fill cardiovascular prescriptions,  $p=.627$ . However, the number of cardiovascular medications a person is utilizing is predictive as significantly contributing to a decision to not fill prescriptions,  $p<0.001$ . The presence of a doughnut hole is a significant contributor to whether or not a member ends up filling all of his cardiovascular prescriptions,  $p=0.011$ .

However, the number of days a beneficiary spends in the doughnut hole does not play a significant role in the model's ability to predict the filling or not filling of a cardiovascular prescription,  $p=0.174$ .

## DISCUSSION

We showed that the doughnut hole significantly influences a patient's decision to obtain cardiovascular medi-

cations. Research in other types of drug benefits suggests the potential for prescriptions to be delayed, switched to another product, or stopped completely when patients are faced with a change in the dynamic of their drug coverage (Gellad et al 2006, Gibson et al 2005, Soumerai et al 2006, Goldman et al 2004, Joyce et al 2002, Huskamp et al 2005, Cox et al 2001, Stuart et al 2005, Rector et al 2004, Hales 2009, Kaiser Family Foundation 2008). Current estimates have the doughnut hole's entrance level surpassing \$6,000 by the year 2016 (NCPSSM 2008). Therefore, it is important to understand how changes in benefit design affect prescription fulfillment behaviors — and to do so specifically for particular disease states.

Our study populations had a high number of different medications — 17.1 +/- 6.97 SD and 16.4 +/- 6.48 SD for stand-alone PDP and MA-PD members, respectively. This compares with another study in which individuals ages 65–69 used approximately 14 prescriptions per year and persons ages 80–84 used about 19 prescrip-

tions per year (ASHP 2004). It is thought that the more a member's prescription decision changes, the more medications are added to the total number being utilized by that person. However, for cardiovascular medication use, the number of medications does not influence the fulfillment decision ( $p=0.627$ ). The number of medications may influence decisions for other classes, yet our findings suggest that for cardiovascular medications it is not the case.

Stopping and/or delaying prescription medication usage may lead to poorer health outcomes (Steinman et al 2001, Tseng et al 2004, Heisler et al 2004, Heisler et al 2005, Federman et al 2006, Tamblyn et al 2001). Some studies in seniors display compliance rates that are comparable to those we demonstrated (Gibson et al 2005, Kaiser Family Foundation 2008, Madden et al 2008, Hsu et al 2008). In one study of persons ages  $\geq 65$ , 22% of participants did not fill prescriptions 1 or more times in a full year because of costs. A total of 23% of respondents reported that they skipped doses of medications (Center on an

Aging Society 2002), while in other studies of nearly similar populations, an increase in drug expenditure related to an increase in prescription drug use (Gibson et al 2005, Stuart et al 2005, Tseng et al 2004). Other studies indicated that as copayments rise, drug utilization decreases (Goldman et al 2004, Joyce 2002, Huskamp et al 2005).

Most similar to our research was a 2007 Kaiser Foundation study in which of 8 drug classes analyzed, 20% of enrollees in the doughnut hole in 2007 either stopped taking a medication in that drug class, reduced medication use (e.g., skipped doses), or switched to a different medication in that class upon reaching the gap. Specifically, 15% stopped taking their medication, 5% switched to an alternative drug, and 1% reduced their medication use (Kaiser Family Foundation 2008). Hsu et al (2008) found that switching to a cheaper medication occurred in 15% of beneficiaries and cessation of medication in 8%.

A goal for the Part D program is to provide Medicare beneficiaries with prescription medications to improve or stabilize their health and prevent unnecessary health care costs such as hospitalizations, emergency room visits, and physician appointments. A benefit structure that encourages compliance with prescription medications may be of great value.

Our study showed that the current Part D benefit design with the doughnut hole altered compliance with prescription drug fulfillment. Some key findings are:

1. The presence of a gap in coverage does influence the medication fulfillment decision.
2. Concerns about the Part D doughnut hole are valid and have already materialized through Washington D.C. and the pharmaceutical industry's plan to reduce the doughnut hole burden by pharmaceutical rebating, and by the Patient Protection and Affordable Care Act, which

proposes to close the doughnut hole by 2020 (Democratic Policy Committee 2010).

3. Compliance with medications can be significantly affected by the type of benefit design deployed by an insuring entity, whether public or private. Caution must be exercised in the design of the prescription benefit,

2001, Stuart et al 1998). A national pharmacy adjudication database unfortunately does not track income of patients being serviced. Socioeconomic status is used to narrow this population by excluding those Medicare beneficiaries who are financially challenged, or who are dual-eligible according to state Medicaid poverty

## **S** stand-alone PDP beneficiaries are 1.8 times as likely to do something other than fill their cardiovascular prescription than are MA-PD beneficiaries.

given the findings of this research and of similar research.

To achieve this goal, the Centers for Medicare and Medicaid Services (CMS) might want to consider creating a more stable or steady drug benefit design that can provide greater consistency for beneficiaries throughout a full year. Enhancements could include prescription behavior guidance programs or patient compliance outreach initiatives. Providing complete funding for the medication therapy management (MTM) services would enhance the pharmacist's patient care services, thereby improving patient behavior and compliance. Our research underscores the undesirable effects of the current Part D prescription drug benefit with its doughnut hole, namely, alterations in prescription fulfillment decision-making. We have shown a specific effect on cardiovascular medication use.

### **LIMITATIONS**

This research has limitations. Data on the level of income are not available from a pharmacy claims database. The level of income for seniors is determined to be a potential confounding factor according to previous similar research (Kennedy et al 2006, Agnew et al 2003, Wilson et al 2005, Klein et al 2006, Steinman et al

thresholds. Some may wish to study the doughnut hole's effect on those with dual (Medicaid and Medicare) eligibility.

This research also does not utilize patients' medical records to analyze health outcomes.

Patients' communications or other interactions with physicians regarding their responsibility for sharing the cost of medications have been described in the current literature as contributing to prescription compliance, but this information is not in a database of pharmacy claims.

One other important limitation is the occurrence of the doughnut hole, which for some members might involve the appearance of cessation their medication and thus a concern that false "stopped" outcomes would be recorded when, in fact, the member may be sourcing his or her medications from a non-recorded outlet such as a Canadian online pharmacy. Members may also appear to stop medications if they store, split pills, or otherwise alter their intended prescription regimen as a means to offset costs. However, member spending is monitored and tracked before and after the doughnut hole, providing the appropriate analysis and forecast of a member's doughnut hole period and beyond.

The potential for a member to use an online pharmacy or other pharmacy source (e.g., a Canadian pharmacy) exists. In this case, the member would pay cash outside of the insurer's adjudication system — there would be no indication in the database if this occurred.

But the member's behavior before and after reaching the doughnut hole phase would provide some guidance. We note that even some medications that were stopped were later restarted — or other medications were refilled or delayed — and thus the member didn't buy medications from an outside source. In no patient files did we observe total stoppage of all medications — which would suggest the patient had gone outside of the insurer's adjudication system.

Our findings are from the first year of Part D, and extrapolation to subsequent years may not be appropriate. Similar research regarding cardiovascular medication use should be undertaken for subsequent years.

## CONCLUSIONS

This study demonstrates how Part D's doughnut hole benefit design affects beneficiaries' prescription fulfillment decisions with respect to cardiovascular medications. These decisions could have potentially serious ramifications on members' cardiovascular health. This study does not go into the health outcomes or clinical significance of such decisions.

Beneficiaries should think twice about deviating from a prescribed refill schedule without directly consulting a health care professional.

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