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Impact of Medicare Part D on Antidepressant Treatment, Medication Choice and Adherence among Older Adults with Depression

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Abstract

Objectives—Depression in older adults is often undertreated due, in part, to medication costs. We examined the impact of improved prescription drug coverage under Medicare Part D on use of antidepressants, medication choice and adherence.

Design, Setting and Participants—Observational claims-based study of older adults with depression (*ICD-9*: 296.2, 296.3, 311, 300.4) continuously enrolled in a Medicare managed care plan between 2004–2007. Three groups with limited (\$150 or \$350 quarterly caps) or no drug coverage in 2004–2005 obtained Part D benefits in 2006. A comparison group had stable employer-sponsored coverage throughout.

Measurements—Any antidepressant prescription fill, antidepressant choice (tricyclics or monoamine oxidase inhibitors vs. newer antidepressants), and adherence (80% of days covered) in the first 6 months of treatment.

Results—Part D was associated with increased odds of any antidepressant use among those who previously lacked coverage [Odds Ratio (OR) 1.61, 95% confidence interval (CI) 1.41–1.85] but

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Disclosure of competing interests

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odds of use did not change among those with limited prior coverage. Use of older antidepressant agents did not change with Part D. All three groups whose coverage improved with Part D had significantly higher odds of 80% of days covered with an antidepressant [OR=1.86 (95% CI, 1.44–2.39) for No coverage, 1.74 (95% CI, 1.25–3.42) for \$150 cap; and 1.19 (95% CI 1.06–1.34) for the \$350 cap groups].

Conclusions—Medicare Part D was associated with improvements in antidepressant use and adherence in depressed older adults who previously had no or limited drug coverage but not with changes in use of older agents.

Keywords

depression; adherence; Medicare; insurance coverage

Depression affects 6% to 10% of older adults in primary care settings, and 20% to 40% of those with chronic medical conditions such as diabetes and cardiovascular disease.(1) Depression leads to substantial morbidity, functional impairment and increased risk of suicide in older adults.(2,3) It also can undermine adherence to treatment for coexisting medical disorders and is associated with significantly higher health care utilization, and mortality.(4–7)

Antidepressant medication prescribed in primary care settings is the mainstay of depression treatment in older adults. However, approximately half of depressed older adults receive no treatment and those who are treated are often non-adherent and/or receive poor quality care (e.g., use of highly anti-cholinergic tricyclic antidepressants).(8) A major barrier to access and adherence to antidepressant therapy is out-of-pocket prescription drug costs.(9) The Medicare drug benefit (Part D) was intended to improve medication access for older adults who previously lacked (18%) or had limited (27%) drug coverage.(10)

Studies indicate that Part D successfully expanded drug coverage(11), reduced out-of-pocket costs and increased overall medication utilization among beneficiaries.(12–17) Given that the response to drug costs varies by medication class depending, for instance, on whether medications are used to treat symptomatic or asymptomatic conditions(18), it is important to study the effects of Part D on treatment of specific conditions. One study using Medicare Current Beneficiary Survey data reported that cost-related non-adherence (i.e., skipping or reducing medication doses and/or not filling prescriptions due to cost) is high among older adults with depression and that the rate of cost-related non-adherence among depressed elders did not change after Part D.(19) However, this study did not stratify by level of prior coverage.

Our objective was to examine the impact of Part D on the likelihood of antidepressant treatment, medication choice, and refill adherence among older adults with depression who transitioned from no or limited drug coverage to Medicare drug coverage. We hypothesized that Part D would lead to increased rates of treatment, choice of newer, more expensive agents, and improved adherence among depressed elders. We further hypothesized that Part D's impact would be greatest among those with no drug coverage pre-Part D.

METHODS

Study Design and Source of Data

This study was approved by the University of Pittsburgh Institutional Review Board. The source of data was a large health insurance company in Pennsylvania that offered a variety of insurance plans to Medicare beneficiaries. We obtained prescription drug, medical claims and enrollment data from the company's Medicare Advantage managed care plans for 2004–

2007. Older adults enrolled with this insurance company had one of four types of drug coverage before Part D. Two groups, who enrolled in plans as individual members, had quarterly pharmacy benefit limits on what their plans paid of \$150 or \$350, depending solely on their county of residence. A third group of individually-enrolled members had no prescription drug coverage and did not participate in the Medicare prescription drug discount card program. The fourth group was enrolled through a former employer or union group that offered supplemental (and more generous) drug coverage. This latter group did not have a quarterly cap on their pharmacy benefits.

Beneficiaries with drug coverage paid similar tiered copayments before Part D (\$10 generic/\$20 brand name for employer group members and \$12 generic/\$20 brand for those with \$150 and \$350 quarterly caps). Other medical benefits and cost-sharing (e.g., outpatient visit copayments) were similar across all four groups (including those without drug coverage). Likewise, all plan members had similar access to the plan's Medication Therapy Management program, which aimed to improve pharmacotherapy for older adults with 2 or more chronic conditions, from 2006 onward (20).

In 2006, the group previously without drug benefits and the two groups with limited drug coverage (i.e., \$150 or \$350 caps) who stayed in the Medicare managed care plans automatically obtained drug benefits actuarially equivalent to (or better than) the standard Part D benefit defined in legislation. Like most Part D plan offerings, the Medicare Advantage Prescription Drug (MA-PD) plans in this study did not have a deductible (\$250 in the standard benefit). Members faced a two-tiered copayment (e.g., \$8/\$20 for generic/brand-name drugs) until their total drug spending reached the coverage gap, or donut hole (\$2,250 in 2006 and \$2,400 in 2007). In the donut hole, the MA-PD plans either covered nothing or generic drugs only with an \$8/\$10 copayment, depending on the option the member chose. After members' annual total drug spending reached the catastrophic coverage limit (\$5,100 in 2006 and \$5,451 in 2007), they paid five percent coinsurance or a copayment (\$2/\$5 for generic/brand-name), whichever was higher. Beneficiaries enrolled in the plan through an employer or union group maintained the same generous drug coverage in 2006 and 2007. Thus, they faced neither a donut hole nor a catastrophic coverage limit.

Using Part D's January 2006 implementation as a natural experiment, we compared utilization within and among these four groups of beneficiaries who had different pharmacy benefits in 2004–2005 (before Part D). We made post- vs. pre-Part D comparisons within each of the three groups with no or limited drug coverage in 2004–2005 who enrolled in Part D drug plans in 2006–2007. We then adjusted for trends in medication use using data from beneficiaries enrolled in employer-sponsored plans who had stable drug benefits throughout the 4-year study period.

Study Sample

The study denominator included 200,000 individuals age 65 and older who were enrolled in the plan during our study period. We identified a sub-sample of all individuals who met three inclusion criteria. First, individuals had to be continuously enrolled in the plan from January 1, 2004 to December 31, 2007. Second, they had to have a diagnosis of depression [*International Classification of Diseases* version 9 (ICD-9) codes 296.2, 296.3, 311, or 300.4] recorded on an inpatient or outpatient claim in either the pre-Part D (2004–2005) or post-Part D (2006–2007) period. We did not require individuals to have a diagnosis both before and after Part D, although some individuals did, due to the episodic nature of depression and the likelihood that many individuals treated before Part D would be in remission afterwards with resulting attrition of study participants.(21) The third inclusion criterion was that individuals fill at least one prescription for *any* drug in one of the company's network pharmacies. The insurance plan observes claims for individuals without

drug coverage or who have exceeded their quarterly cap so long as they fill prescriptions in one of the plan's network pharmacies. These individuals had a strong incentive to fill prescriptions in network pharmacies because although they had to pay 100% of the cost of prescriptions they received a 15% discount by using their insurance card. The total sample was 15,080 unique individuals (10,678 pre-Part D, 10,650 post-Part D, and 6,248 in both periods). We used this sample to examine the impact of Part D on the likelihood of filling any antidepressant prescription (Figure 1).

From this sample of 15,080 we constructed two sub-samples for analyses of medication choice and adherence. For analyses of medication choice, we constrained the sample to individuals who filled at least one antidepressant prescription during 2004–2005 for pre-Part D (N=7,785) or during 2006–2007 for post-Part D (N=8,120). The medication choice sample included 11,411 unique individuals (4,494 were in both periods).

For the adherence analysis, we further limited the 11,411 individuals who used antidepressant medication to those (1) who had a “treatment free” period of at least two months before the index prescription (to ensure that we observed adherence at the beginning of an episode of treatment), and (2) whose first prescription was observed at least 6 months before the end of each study period (before July 1, 2005 for pre-Part D and before July 1, 2007 for post-Part D). The latter restriction allows us to observe claims for a long enough duration to measure 6-month adherence. The adherence analysis included 7,061 unique individuals (3,996 pre-Part D, 4,184 post-Part D; 1,119 in both periods).

Outcome measures

We created a dichotomous variable for whether an individual filled a prescription for an antidepressant (during 2004–2005 for pre- or 2006–2007 for post-Part D). We included drug claims for antidepressants (American Hospital Formulary System therapeutic class code 28:16.04, including Selective Serotonin Reuptake Inhibitors [SSRI], Serotonin Norepinephrine Reuptake Inhibitors [SNRI], other novel antidepressants [e.g., bupropion], tricyclic antidepressants [TCAs], and monoamine oxidase inhibitors [MAOI]). We excluded prescriptions filled for antidepressants primarily used for sleep disorders (e.g., trazodone).

We created a dichotomous measure of whether individuals filled a prescription for a TCA or MAOI, medications with a high risk of drug-drug and drug-disease interactions in older adults.(22) TCAs, which are highly anticholinergic, are considered second line therapy for older adults. MAOIs are typically contraindicated due to dietary restrictions with tyramine-containing foods and profound orthostatic hypotension.(23)

To measure antidepressant adherence, we used prescription fill dates and days supply variables to calculate medication possession ratios (MPR) (24,25), the number of days in the first 6 months following initiation of treatment that an individual was covered with (i.e., filled prescriptions for) an antidepressant. If an individual was taking more than one antidepressant concurrently we only counted the days supplied of one of the medications toward the total days covered during the overlap. We constructed a dichotomous measure -- whether individuals had 80% of days covered with an antidepressant in the first 6 months after the index prescription (i.e., at least 144 days supply in a 180 day period). This 80% threshold is commonly used in adherence studies.(25,26).

Independent Variables

Our primary independent variables were level of pharmacy benefits in 2005 (No coverage, \$150 quarterly cap, \$350 quarterly cap, employer-sponsored), and time with respect to the policy change (pre-/post-Part D). We used time $\times$ pharmacy benefit level interaction terms to assess whether the policy's impact varied by the level of pre-Part D drug benefits.

Covariates

Socio-demographic covariates included age, gender, and census block group-level information on race (percent of residents of the block group who were black), income (percent with incomes below poverty-level), and education (percent with some college education). To control for health status and medical comorbidity, we included a prospective risk score variable calculated in 2004 for pre-Part D and in 2006 for post-Part D. The risk scores are calculated using Risk Grouper software from DxCG which uses a series of proprietary algorithms to generate risk scores based on each member's ICD-9 diagnoses and/or Healthcare Common Procedure Coding System codes. The resulting scores are similar to the Centers for Medicare and Medicaid Services-Hierarchical Condition Categories (CMS-HCC) weights used to adjust Medicare Advantage Plan payments.⁽²⁷⁾ A higher prospective score indicates a likelihood of higher spending in the following year.

Statistical analysis

We used SAS[®] version 9.1 (SAS Institute, Inc., Cary, North Carolina) for all statistical analyses. Appropriate descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarize participant characteristics by pharmacy benefit level. Pearson chi-square and analysis of variance (ANOVA) were used to compare participant characteristics among the levels of pre-Part D pharmacy benefit generosity and also pre- vs. post-Part D within pharmacy benefit group. In preliminary analyses, we examined the two pre-Part D years and the two post-Part D years separately but found the results to be quite similar to the analyses combining 2004–2005 for pre and 2006–2007 for post so we report only the results from the pooled analysis.

For the main analysis, we fit a series of generalized estimating equations (GEE) models (26,27) with each dichotomous outcome (any antidepressant prescription, medication choice, and refill adherence) as the response variable; a binomial distribution for the response variable; a logit link function; time period with respect to policy change (pre-/post-Part D), level of pre-Part D pharmacy benefit (no coverage/\$150 cap/\$350 cap/employer-sponsored) and the time period $\times$ pharmacy benefit level interaction as main categorical independent variables of interest; and an exchangeable correlation structure to account for multiple data points from the same subjects over time and the resulting stochastic non-independence of observations. We constructed contrasts to obtain post- vs. pre-Part D odds ratios (OR) separately for each level of pre-Part D pharmacy benefit; and to obtain ratios of odds ratios (ROR) with respect to the OR for the reference group of employer-sponsored coverage. Wald chi-square statistic (χ^2) was used to obtain statistical significance of the ORs and RORs.

RESULTS

Characteristics of the study sample

The characteristics of the study sample are presented in Table 1. The groups with limited or no drug coverage prior to Part D were slightly older (mean age 76.84, 76.06, and 75.47 in the No coverage, \$150 and \$350 cap groups, respectively, compared to 74.21 in the Employer group, ANOVA, $df=1$, $p<0.05$). The groups with \$150 and \$350 quarterly caps were more likely than the employer group to be female (78.48% and 75.68%, respectively, vs. 68.21%, χ^2 , $df=1$, $p<0.05$). The three intervention groups were similar to the comparison group on our health status measures with no significant differences among groups in prospective risk score or prevalence of diabetes mellitus or hypertension. All four pharmacy benefit groups experienced similar increases in prospective risk score over the study period consistent with a continuously-enrolled, aging cohort.

Use of Antidepressant Medication

Table 2 provides the raw, unadjusted percentage of older adults with depression filling a prescription for an antidepressant before and after Part D as well as the multivariable Part D effect. Individuals enrolled in employer-sponsored plans whose drug coverage did not change during the study period (comparison group) experienced no change in antidepressant use after Part D (OR=0.97; 95% CI=0.87–1.07; $\chi^2=0.41$; $p=0.52$). In contrast, individuals who had no drug coverage in 2004 and 2005 who obtained Part D benefits in January 2006, increased the rate of antidepressant treatment from 56 to 68 percent (OR=1.61; 95% CI=1.41–1.85; $\chi^2=46.13$; $p<0.0001$). Compared to the employer-sponsored reference group, Part D's impact on the no coverage group was significantly greater (ROR) =1.67; 95% CI=1.40–1.99; $\chi^2=5.79$; $p<0.0001$). Rates of antidepressant use in the two groups with limited pharmacy benefits (\$150 and \$350 quarterly caps) were similar to those in the employer group and did not change with Part D.

Medication choice

Table 3 shows that all four pharmacy benefit groups experienced small reductions in the likelihood of using TCAs or MAOIs from 2004–05 to 2006–07. However, only the reductions in the \$350 cap group and employer-sponsored coverage group were statistically significant (OR=0.89; 95% CI=0.81–0.98; $\chi^2=5.27$; $p=0.02$ for \$350 cap; OR=0.82; 95% CI 0.70–0.96; $\chi^2=6.48$; $p=0.01$ for employer-sponsored). After adjusting for trends in the comparison group, none of the three groups who transitioned to Part D experienced a significant change in the likelihood of use of these medications.

Antidepressant Refill Adherence

Table 4 displays the pre- and post-Part D percentage who had 80% of days covered with an antidepressant (i.e., good refill adherence) in the first six months after the index prescription. Approximately half of the group with employer-sponsored drug coverage had 80% of days covered with an antidepressant in 2004–2005; this percentage did not change significantly after Part D (OR=0.86; 95% CI=0.71–1.02; $\chi^2=2.89$; $p=0.09$). In contrast, each of the three groups with limited or no drug coverage pre-Part D experienced a significant increase in the rates of good 6-month refill adherence after the new benefit was introduced. The percentage with good refill adherence increased from 37 pre-Part D to 53 post-Part D for the group that previously lacked drug coverage (OR= 1.86; 95% CI=1.44–2.39; $\chi^2=22.97$; $p<0.0001$). The percentage with good adherence increased from 37 to 51 for the \$150 cap group (OR=1.74; 95% CI=1.25–2.42; $\chi^2=10.75$; $p=0.001$) and from 38 to 43 in the \$350 cap group (OR=1.19; 95% CI=1.06–1.34; $\chi^2=8.16$; $p=0.004$). The impact of Part D was significantly greater on the no and limited coverage groups (\$150 and \$350 caps) compared to that on the employer-sponsored group (RORs=2.17, 2.03, and 1.39, respectively; all $\chi^2>9.06$ and $p<0.003$).

CONCLUSIONS

Our study is the first to examine the impact of the new Medicare drug benefit on likelihood of antidepressant treatment, medication choice and refill adherence for older adults with depression who previously lacked or had minimal drug coverage.

Part D was associated with an increased likelihood of antidepressant treatment among older adults diagnosed with depression who previously lacked drug coverage. This result is consistent with a major goal of Part D -- to reduce financial barriers to medication access among the elderly -- and is important given the significant morbidity and mortality associated with under-treatment of depression in elderly patients.(2,3,8) We did not see an increase in likelihood of antidepressant treatment, however, among those who transitioned from limited benefits to Part D benefits suggesting that Part D's effect on overall rates of

depression treatment will be concentrated among seniors who lacked drug coverage prior to Part D who went on to enroll in the new benefit.

Part D was also associated with increased rates of refill adherence in the group that previously lacked coverage and also among those who experienced improvements in drug coverage (i.e., those with capped benefits). We estimated that older adults enrolled in Part D had more than twice the relative odds of good adherence in the first six months of treatment compared to those enrolled in the same plan who had limited (\$150 caps) or no drug coverage prior to Part D. Experiments with value-based insurance design, whereby insurers reduce cost-sharing for medications shown to reduce morbidity and mortality, have yielded similar improvements in adherence.(28) Our findings have important clinical implications because improved antidepressant use and adherence reduces rates of relapse and recurrence of depression.(29,30) The fact that Part D was associated with a change in adherence but not likelihood of treatment in the group who transitioned from capped benefits suggests that an older adult with limited drug coverage may be willing to start antidepressant treatment but, when faced with gaps in coverage, may forgo refills and be non-adherent over a longer time period.

In spite of the significant improvements in adherence associated with Part D, however, only half of individuals in our study sample were adherent to antidepressant pharmacotherapy. These findings suggest that reductions in cost-sharing should be combined with other interventions, such as depression care management, to improve antidepressant adherence among older adults.(2)

We did not detect the hypothesized reduction in the use of TCAs and MAOIs, which have been available as less expensive generics for several years, after the implementation of Part D. Use of these medications increases the risk of interactions with other drugs and/or exacerbations of other diseases in older adults(22,23) although recent evidence suggests that rates of adverse effects such as falls are similar between SSRIs and TCAs.(31) One possible explanation for this finding is that a number of newer antidepressants (e.g., SSRIs) also became available as less expensive generics before Part D's implementation so the pharmacy copayments, which differ for brand name and generic drugs, were similar across pharmacologic classes in the antidepressant category. Thus, out-of-pocket costs were just as low for many of the most commonly used SSRIs as they were for older agents.

There are some potential limitations to our study. First, selection bias may be introduced if individuals with poorer health status were more likely to enroll in plans with more generous drug coverage. Because the level of coverage pre-Part D depended on where beneficiaries lived or whether they were eligible for retiree drug coverage, we believe the degree of selection bias across study groups to be small. Second, as is typical of analyses of claims data, we lack information on socioeconomic status and other variables (e.g., marital status). We used census block-level data on race, education and income which has been found to yield similar estimates of the associations between socioeconomic status and health outcomes as individual-level data although these effects are sometimes underestimated.(32). Third, depression is often undercoded in claims data. To check the robustness of our estimates we conducted analyses (except for the treatment initiation model) using all individuals who filled antidepressant prescriptions (regardless of depression diagnosis). The results were qualitatively similar to the more conservative approach of requiring a diagnosis which has higher specificity.(21) We do not expect the degree of diagnosis coding to vary across benefit groups or over time so as to bias our estimates of the effect of Part D. Fourth, to the degree those without benefits filled prescriptions in non-network pharmacies in 2004 and 2005, we may overestimate the effect of Part D on antidepressant use. We believe this bias is small because we limited our analyses to individuals who filled prescriptions in

network pharmacies; plan members received a 15% discount when doing so. Finally, this study of community-dwelling elders living in Pennsylvania may not be representative of older adults nationally. However, our study sample spans the range in generosity of pharmacy benefits in existence nationally at the time of Part D's implementation. Moreover, national Part D data do not contain pre-Part D utilization data required for our analyses.

This is the first study to show that Medicare Part D was associated with an increase in the likelihood of antidepressant treatment and refill adherence for antidepressants in older adults with depression. Our results indicate that Medicare Part D may have helped to address a major barrier to achieving optimal quality of care for depressed elders. Additional interventions may be necessary to further improve selection of antidepressant agent and adherence.

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Figure 1.

Flow chart describing study samples

* Denominator = 200,000 individuals enrolled in study insurance plan 2004–07

Table 1

Characteristics of enrollees with a diagnosis of depression

	No coverage		\$150 cap		\$350 cap		Employer-sponsored	
	Pre-Part D	Post-Part D	Pre-Part D	Post-Part D	Pre-Part D	Post-Part D	Pre-Part D	Post-Part D
Age	76.84 (6.19) [†]	78.71 (6.27)	76.06 (6.34) [†]	77.9 (6.42)	75.47 (6.36) [†]	77.44 (6.52)	74.21 (6.21) [*]	76.5 (6.18)
% female	70.72	69.94	78.48 [†]	77.58	75.68 [†]	75.04	68.21	67.76
% below poverty level in census block group	4.86 [†]	4.86	5.09 [†]	4.97	4.30	4.30	4.19	4.30
% black in census block group	4.29	4.26	1.78 [†]	1.81	4.84 [†]	4.78	4.28	4.63
% with some college in census block group	43.25 [†]	42.8	36.95 [†]	37.01	46.8	46.98	46.99	47.2
Prospective Risk Score	1.30 (1.01) [*]	1.68 (1.26)	1.21 (0.97) [*]	1.62 (1.18)	1.21 (1.04) [*]	1.60 (1.26)	1.22 (1.08) [*]	1.62 (1.34)
% with diabetes mellitus	32.34 [*]	38.57	32.02 [*]	38.93	32.69 [*]	37.43	32.72 [*]	39.39
% with hypertension	82.3 [*]	86.9	83.07 [*]	87.11	83.45 [*]	87.32	82.07 [*]	87.15

Means (standard deviation) or percentages

^{*} Statistical significance at 0.05 level between pre and post.

[†] Statistical significance at 0.05 level between No coverage, \$150 and \$350 cap groups and the employer-sponsored group for pre-Part D

Chi-square test for dichotomous variables and ANOVA with F-test for continuous variables. Degrees of freedom for all tests = 1.

Sample size: 15,080 unique individuals [No Coverage: 1,877 total, 1,209 pre/1,374 post with 706 in both periods; \$150 cap: 1,069 total, 762 pre/745 post with 438 in both periods; \$350 cap: 8,395 total, 6,024 pre/5,901 post with 3,530 in both periods; Employer-sponsored: 3,739 total, 2,683 pre/2,630 post with 1,574 in both periods]

Table 2

Likelihood of Filling At Least One Prescription For An Antidepressant Before and After Medicare Part D

Pharmacy benefit group	<i>unadjusted percent</i>		<i>Multivariable Part D effect</i>		
	Pre-Part D	Post-Part D	Post vs. Pre-Part D OR (95% CI)	Ratio of ORs for post vs. pre-Part D relative to comparison group (95% CI)	χ^2 (p-value) for ratio of OR
No Coverage	56	68	1.61 (1.41–1.85)	1.67 (1.40–1.99)	5.79 (<0.0001)
\$150 cap	71	75	1.13 (0.94–1.37)	1.17 (0.94–1.46)	1.44 (0.15)
\$350 cap	74	77	1.06 (0.99–1.13)	1.09 (0.96–1.24)	1.39 (0.16)
Employer-sponsored group	79	80	0.97 (0.87–1.07)	reference	

Notes: Generalized estimating equations models adjust for age, sex, prospective risk score, census block group-level information on poverty rate, race, education. Degrees of freedom = 1

The employer group that experienced no change in pharmacy benefits acts as the reference group

Pre-Part D time period is January 1, 2004–December 31, 2005. Post-Part D time period is January 1, 2006–December 31, 2007.

Sample size: 15,080 unique individuals [No Coverage: 1,877 total, 1,209 pre/1,374 post with 706 in both periods; \$150 cap: 1,069 total, 762 pre/745 post with 438 in both periods; \$350 cap: 8,395 total, 6,024 pre/5,901 post with 3,530 in both periods; Employer-sponsored: 3,739 total, 2,683 pre/2,630 post with 1,574 in both periods]

Table 3

Likelihood of filling a prescription for TCAs or MAOIs before and after Medicare Part D

Pharmacy benefit group	Unadjusted percent			Multivariable analyses		
	Pre-Part D	Post-Part D	Post vs. Pre-Part D OR (95% CI)	χ^2 (p-value) for post/pre OR	Ratio of ORs for post vs. pre-Part D relative to comparison group (95% CI)	χ^2 (p-value) for ratio of OR
No coverage	12	11	1.02 (0.82–1.28)	0.03 (0.86)	1.25 (0.95–1.63)	2.55 (0.11)
\$150 Cap	15	13	0.87 (0.66–1.12)	1.19 (0.28)	1.06 (0.78–1.43)	0.13 (0.72)
\$350 Cap	12	10	0.89 (0.81–0.98)	5.27 (0.02)	1.09 (0.91–1.30)	0.88 (0.35)
Employer-sponsored group	12	9	0.82 (0.70–0.96)	6.48 (0.01)	reference	

Notes: Generalized estimating equations models adjust for age, sex, prospective risk score, census block group-level information on poverty rate, race, education. Degrees of freedom = 1

The employer group that experienced no change in pharmacy benefits acts as the reference group

Pre-Part D time period is January 1, 2004–December 31, 2005. Post-Part D time period is January 1, 2006–December 31, 2007.

Sample size: 11,411 unique individuals [No Coverage: 1,218, 672 pre/935 post with 389 in both periods; \$150 cap: 790 total, 542 pre/562 post with 314 in both periods; \$350 cap: 6,409 total, 4,460 pre/4,520 post with 2,571 in both periods; Employer-sponsored: 2,994 total, 2,111 pre/2,103 post with 1,220 in both periods]

TCA = tricyclic antidepressant; MAOI = Monoamine Oxidase Inhibitor

Likelihood of having 80% of days covered with an antidepressant in the first six months of treatment for depression before and after Medicare Part D

Table 4

Pharmacy benefit group	<i>Unadjusted percent</i>		<i>Multivariable Part D Effect</i>		
	Pre-Part D	Post-Part D	post vs. pre-Part D OR (95% CI)	Ratio of ORs for post vs. pre-Part D relative to comparison group (95% CI)	χ^2 (p-value) for ratio of OR
No coverage	37	53	1.86 (1.44–2.39)	22.97 (1.59–2.96)	23.99 (<0001)
\$150 Cap	37	51	1.74 (1.25–2.42)	10.75 (0.001)	13.68 (0.0002)
\$350 Cap	38	43	1.19 (1.06–1.34)	8.16 (0.004)	9.06 (0.0026)
Employer-sponsored group	51	48	0.86 (0.71–1.02)	1.39 (1.12–1.72)	reference

Notes: Individuals with days supply greater than or equal to 144 in the first 6 months after the index prescription considered to have good adherence.

Generalized estimating equations models adjust for age, sex, prospective risk score, census block group-level information on poverty rate, race, education. Degrees of freedom = 1

The employer group that experienced no change in pharmacy benefits acts as the reference group

Pre-Part D time period is January 1, 2004–December 31, 2005. Post-Part D time period is January 1, 2006–December 31, 2007.

Sample size: 7,061 unique individuals [No Coverage: 905 total, 425 pre/623 post with 143 in both periods; \$150 Cap: 503 total, 292 pre/298 post with 87 in both periods; \$350 cap: 3,956 total, 2,316 pre/2,301 post with 661 in both periods; Employer-sponsored: 1,697 total, 963 pre/962 post with 228 in both periods]