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Impact of Medicare Part D on Coverage, Access, and Disparities Among New Jersey Seniors

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Abstract

The authors used a population-based survey of New Jersey residents to assess outcomes associated with implementation of the Medicare Part D program. Between 2001 and 2009, there was a 24% increase in prescription drug coverage among elderly individuals, but also an increase in cost-related access problems. Compared with the pre–Part D period, seniors reporting access problems post–Part D were less likely to be uninsured and more likely to be publicly insured. Cost-related access disparities among elderly Blacks and Hispanics relative to elderly Whites persisted from 2001 to 2009, and were partly driven by ongoing disparities related to low income. Such cost-based access problems 3 years into implementation implies that they are not transitory and may reflect inadequate subsidy levels alongside the importance of physician advice about prescriptions in ensuring low-cost medication options for vulnerable patients. Finally, the findings, may also reflect success in enrolling high-need seniors into Part D.

Keywords

Medicare Part D, prescription cost sharing, prescription coverage, prescription access, racial disparities

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Introduction

The Medicare Part D program has made available outpatient prescription drug coverage to all Medicare beneficiaries since 2006. This coverage is provided by two categories of private insurance plans including stand-alone prescription drug plans and Medicare Advantage Prescription Drug plans that replaced coverage under the Medicare+Choice program in 2004 and became fully operational in 2006 (Gold, 2008). The Medicare+Choice prescription plans offered a limited source of outpatient prescription coverage within the Medicare program before Part D. In 2003, 13% of Medicare beneficiaries were enrolled in Medicare+Choice plans (Kaiser Family Foundation, 2012) and 69% of them received some prescription coverage (Kaiser Family Foundation, 2004). State Prescription Assistance Programs (SPAPs) available only in selected states and covering 3% of Medicare enrollees nationally in 2001, provided another albeit limited source of prescription drug coverage before Part D (Fox, Trail, & Crystal, 2002).

The Part D program with its broader reach accomplished its primary goal of increasing prescription drug coverage for seniors and more than 37 million Medicare beneficiaries are enrolled in Part D plans in 2014. However, despite the increase in coverage from 53% of eligible Medicare beneficiaries in 2006 to 70% in 2014 (Hoadley, Summer, Hargrave, Cubanski, & Neuman, 2014), increasing premiums and high cost sharing in Part D plans have raised concerns about the affordability of coverage and cost-based access problems, particularly among seniors with low incomes, those with high prescription drug needs, and minorities. Until recent changes by the Affordable Care Act, most seniors faced 100% cost sharing after they crossed a threshold level of expenditure and entered the coverage gap known as "doughnut hole." This resulted in negative effects on prescription drug utilization as documented by Schneeweiss et al. (2009) and Y. Zhang, Donohue, Newhouse, and Lave (2009). While the Affordable Care Act introduces reductions in such cost-sharing, these are phased in gradually, and in 2013 nonsubsidized beneficiaries continued to face high cost-sharing while in the doughnut hole, that is, 47.5% for branded drugs and 79% for generic drugs (Centers for Medicare & Medicaid Services, 2013).

In addition, some of the positive effects of reduced cost-sharing are offset to a large extent by the increasing premiums for prescription coverage. The average monthly prescription drug plan premium, weighted by enrollment, increased by 55% from $25.93 in 2006 to a projected $40.18 in 2013 (Hoadley, Cubanski, Hargrave, Summer, & Huang, 2012).

The high levels of cost-sharing and increasing premiums described above may result in decreased medication purchasing power for seniors, with adverse effects on medication adherence. Madden et al. (2008) found that cost-related nonadherence did not decrease among the sickest patients after the implementation of Part D. Prescription drug access problems are also found to be more common among racial/ethnic minorities and, a number of pre–Part D studies documented lower drug utilization and spending by minorities compared with Whites (Briesacher, Limcangco, & Gaskin, 2003; Gaskin, Briesacher, Limcangco, & Brigantti, 2006). This arose from greater prescription drug access problems faced by minorities due to inadequate program familiarity (Morgan et al., 2008), cost-related nonadherence, and related prescription access

problems (Gellad, Haas, & Safran, 2007; Klein, Turvey, & Wallace, 2004; Steinman, Sands, & Covinsky, 2001; Soumerai et al., 2006).

These pre–Part D findings underscore the importance of examining the impact of the Part D program on such disparities. While there are studies documenting its effect on overall drug expenditures, utilization, and health care costs (Ketcham & Simon, 2008; Liu et al., 2011; J. X. Zhang, Yin, Sun, & Alexander, 2008), there is very limited current research on how Part D affected racial disparities among beneficiaries (Chen, Rizzo, & Ortega, 2011; Frankenfield et al., 2010; Frankenfield, Howell, Wei, & Anderson, 2011; Haviland et al., 2012). Several of these note racial disparities in access including higher likelihood of cost-related nonadherence among minorities (Frankenfield et al., 2010; Frankenfield et al., 2011).

The importance of identifying and documenting these disparities in access is further borne out by substantial evidence that lack of continual and stable medication regimen adherence that can result from cost-related factors (Goldman, Joyce, & Zheng, 2007) can lead to poorer health and higher rates of hospitalization (Goldman et al., 2007; Mojtabai & Olfson, 2003). Consequently, prescription drug access problems that disproportionately affect minority populations may in the long run result in poorer health for these groups.

In light of all these findings, it is important to examine the extent to which Part D ameliorated previously existing access problems and also whether program benefits may be different across demographic groups. While we would generally expect an increase in coverage to reduce existing access problems, Part D benefit structures characterized by high premiums and cost-sharing, and complex plan characteristics may limit positive impacts of this policy.

This article examines these issues using a population-based survey of New Jersey residents conducted in 2001 and 2009. First, we determined whether the introduction of Part D policy was associated with greater prescription coverage and decreased cost-related access problems among New Jersey seniors. We next examined whether changes resulted in racial/ethnic disparities in coverage and access. While our study is New Jersey specific, it ranked as one of the top states in terms of SPAP enrollment as a percentage of Medicare enrollment and drug expenditure per enrollee and also had a generous income threshold for qualifying as an SPAP beneficiary (Trail, Fox, Cantor, Silberberg, & Crystal, 2004). Thus, our findings may be particularly relevant for other states with strong SPAPs that had relatively high access to prescription drugs prior to Part D. It is also worth mentioning that New Jersey's age, racial/ethnic, and health insurance coverage distributions are virtually identical to the corresponding distributions nationally (U.S. Census Bureau, n.d.), so we expect our findings relating to racial/ethnic disparities in the post–Part D period to be informative for the rest of the nation.

New Contribution

Our study is distinct from prior research in several important ways. First, unlike most prior studies examining coverage and access (Chen et al., 2011; Frankenfield et al., 2010; Frankenfield et al., 2011; Gellad et al., 2007), we incorporate a near-elderly

comparison group and examine relative trends from a pre– to post–Part D period. Our survey data from before and after Part D and conducted for all ages allows such a framework. It also provides some specific advantages that are not available in claims, namely reasons for gaps in prescription utilization. We are thus able to shed light on the extent to which cost-related factors contribute to nonadherence among Part D beneficiaries. This is distinct from nonadherence due to intentional skipping of medications because of side effects, lower self-perceived need, or beliefs about risks and benefits (Craig, Kreling, & Mott, 2003). Finally, we examine prescription coverage for the elderly from all payers including private insurance. This allows a more comprehensive assessment of program impact on prescription coverage and access by accounting for any substitution away from private insurance that may have accompanied the increase in public coverage.

Conceptual Framework

Our analysis is framed by consumer demand theory where a patient's demand for better health leads to higher derived demand for health inputs such as medical and pharmaceutical services (Folland, Goodman, & Stano, 2003; Grossman, 1972). Furthermore, the quantity demanded for such services depends on various factors including patient income and price for such services. If current demand is not completely inelastic, then insurance coverage reduces the effective price paid by patients and increases demand for prescription drugs. In contrast, increases in cost sharing effectively increase the prices of prescribed pharmaceutical products, and reduce the quantity demanded of these products. In cases where cheaper, substitute products do not exist, this would lead to reduced medication adherence (lower inputs to health production) that can have negative health consequences over time.

While the economics of consumer demand and related empirical research help explain decreased utilization that may accompany increases in cost-sharing, our survey data facilitate better identification of such pathways by asking respondents specific questions related to cost burden that leads to decreases in pharmaceutical utilization.

Method

Using survey data (described below), we estimated difference-in-differences (DD) models to examine trends in coverage and access problems from pre– to post–Part D for the elderly population relative to a near-elderly comparison group, similar to other studies (Ketcham & Simon, 2008; Liu et al., 2011; J. X. Zhang et al., 2008) examining the effect of the program. We describe this in detail below noting the caveats associated with the DD approach. The study was approved by the institutional review board at the authors' institution.

Data

We used data from the New Jersey Family Health Survey (NJFHS) conducted in 2001 and 2009 by the Rutgers Center for State Health Policy with funding from the Robert Wood Johnson Foundation. The NJFHS was a random-digit-dialed telephone survey

designed to collect detailed information on all related family members in each sampled household on age, gender, race/ethnicity, income, medical and prescription drug insurance, utilization, access problems, and health status. All questions were answered by the adult in the household who was most knowledgeable about his or her family's health and health care. The 2001 survey collected information from 2,265 families (6,466 individuals) with landline telephones and had a response rate of 59.3%. The 2009 survey collected information from 2,100 families (6,319 individuals) with landlines and 400 families (1,017 individuals) that relied exclusively or mainly on cell phones. For 2009, the response rate was 61.7% for landlines, 26.0% for cell phones, and 45.4% overall. Response rates for the NJFHS are comparable to other similar state health surveys (Davern et al., 2010; Link, Battaglia, Frankel, Osborn, & Mokdad, 2007; State Health Access Data Assistance Center, 2008). The NJFHS includes weights with poststratification adjustments that have been shown in similar surveys to minimize the potential for response bias (Davern et al., 2010).

Outcome Variables

We examined two specific outcomes relating to each family member: (1) prescription drug coverage and (2) cost-related problems in accessing prescription drugs. The questions were about each member of the household as answered by the responding adult. The measure of prescription drug coverage was based on a series of modified questions from the National Survey of America's Families to identify all possible sources of prescription coverage (Centers for Medicare & Medicaid Services, n.d.; Wang, Cantor, & Vaden-Kiernan, 2000). Information was collected on whether each family member was enrolled in any prescription drug insurance plan and the source of the plan, for example, state of New Jersey's Pharmaceutical Assistance for the Aged and Disabled prescription plan, employer health insurance, or Medicare Part D (for 2009 only). Based on this, we classified prescription drug insurance as public or private.

Two questions in the survey examined cost-related prescription drug access problems separately for each household member: (1) "During the past 12 months, was there a time when you (or someone in your family) didn't get or delayed getting a prescription because it cost too much? (If yes) Who was that" (Center for Studying Health System Change, 2013) and (2) "During the past 12 months have you (or someone in your family) taken less of a prescribed medicine to make the prescription last longer? (If yes) Who was that?" We classified individuals as perceiving cost-related access problems if the answer was "yes" to either or both of these questions.

Study and Comparison Groups

For studying the elderly individuals (age 65 years or older), we compare them with near-elderly individuals (age 50-64 years) since an ideal comparison group, Medicare beneficiaries without eligibility for Part D does not exist. The DD approach assumes that there are no unmeasured factors from which outcomes would change relatively between the elderly and near-elderly. This assumption is not fulfilled when the two groups have differential trends and the DD estimate then captures this difference over

time (Engelhardt & Gruber, 2010). We have only 1 year of pre–Part D data and thus cannot test whether the trends differ across these groups prior to implementation. However, some other studies have not found significant differences in pre–Part D trends between the elderly and near-elderly groups (Engelhardt & Gruber, 2010; Liu et al., 2011). The DD assumption would also be violated if there were unmeasured factors between the pre- and postperiods that differentially affect the two groups, for instance a disproportionate effect of the major recession that occurred in 2008-2009. In light of such issues, we examine separately the effect of the program on the elderly, alongside the DD estimates that take into account near-elderly trends. We also conduct sensitivity analysis to examine whether the results vary when we define the elderly group as belonging to the age category 65 to 80 years and the near-elderly group, 55 to 64 years, or when we exclude all individuals who did not have health insurance. The last specification removes the disproportionate effect of the recession on the health-insurance status of the near-elderly group in 2009 and related access problems.

Explanatory Variables

Our primary measures of exposure to Part D coverage are an indicator variable for age greater than or equal to 65 years and a post–Part D year (2009) indicator. Model covariates include gender, race/ethnicity, income related to federal poverty level (FPL), and presence in the previous 3 months of a serious or morbid symptom using the symptom-response instrument in the 1994 Access to Care Survey (Baker, Shapiro, Schur, & Freeman, 1998). Such symptoms include chest pain, back or neck pain, shortness of breath, and loss of consciousness or fainting.

Analytic Approach

We estimated logistic regression models to determine the effect of the Part D policy on the likelihood of having coverage or experiencing access problems, controlling for the individual-level covariates described above. We used the DD methodology that has been previously used in pre/post studies of a treatment versus comparison group adapting it to our nonlinear logistic framework. In a linear specification, the coefficient of the interaction term in a DD regression estimates the interaction effect capturing the impact of policy on the outcomes of interest, but in nonlinear specifications, the interaction effect is not equal to the marginal effect of the interaction term (Ai & Norton, 2003). However, if the specification is logistic, an alternative approach (Norton, Wang, & Ai, 2004) can be used to calculate the odds ratios (ORs) for the study and comparison groups. The estimated coefficient of the interaction term which we later refer to as the DD estimate is the ratio of these two ORs: (OR for the elderly/OR for the near-elderly). This ratio-of-odds ratios (ROR) thus captures the extent to which the increase in odds of coverage or access problems (from the pre- to the postperiod) is higher for the study group relative to the comparison group. We describe below the derivation of individual ORs and the the DD estimate.

Formally, we assess the probability (p_{it}) that individual i has prescription coverage or reported access problems in time t using the following framework:

$$\log\left[p_{it}/(1-p_{it})\right] = \beta_0 + \beta_1 E_i + \beta_2 \text{POST}_t + \beta_3 E_i * \text{POST}_t + \beta_4 X_{it} \quad (1)$$

In Equation (1), E_i is a 0-1 variable indicating whether individual i is elderly, while POST_t is a 0-1 indicator variable for the post–Part D year. X_{it} is a vector of covariates (described above) for individual i at time t. Based on Equation (1), we calculated the odds of having coverage (or access problems) for the study and comparison groups in each of the years. For example, after adjusting for covariates in the model, the odds of coverage (or access problems) for an elderly individual in 2009 are given by Equation (2) where $E_i = 1$ and $\text{POST}_t = 1$:

$$\left[p_i/(1-p_i)\right]_{\text{elderly, 2009}} = \exp\left[\beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 X_{it}\right] \quad (2)$$

We similarly calculated the odds for the elderly in 2001 and the near-elderly in 2001 and 2009.

Based on these four calculated odds, we derived the ORs for the elderly and the comparison group. Specifically, the *OR* for the comparison group is $\exp(\beta_2)$, which measures the odds of a near-elderly individual experiencing these outcomes in 2009 relative to 2001. Similarly, the OR for the elderly is $\exp(\beta_2 + \beta_3)$, which measures the relative odds of an elderly individual in 2009 compared with 2001. $\text{Exp}(\beta_3)$ is the DD estimate, which is the ROR measure described above. In the context of Equation (1), this equals the exponentiated coefficient of the interaction term between the indicator for the elderly and the post–Part D year indicator. An ROR greater than 1 implies that the odds of the elderly study group increased to a greater extent than the comparison group from 2001 to 2009.

For examining changes in racial disparities in access we adopt a similar methodology but the calculations and interpretations differ, since we conduct separate regression analyses for each of the years, 2001 and 2009. Here, we calculate the odds of reporting access problems by minorities relative to Whites for each of the years, unlike the coverage estimation where the increased odds were relative to the preperiod.

$$\log\left[p_{it}/(1-p_{it})\right] = \beta_0 + \beta_1 E_i + \beta_2 \text{Black} + \beta_3 \text{Hispanic} + \beta_4 E_i * \text{Black} + \beta_5 E_i * \text{Hispanic} + \beta_6 X_{it} \quad (3)$$

Equation (3) represents the framework for calculating the ORs reflecting the likelihood of access problems for minorities relative to Whites, separately for the elderly and the near-elderly. Based on Equation (3), the odds of reporting access problem for an elderly Hispanic and elderly White person in any particular year is given by Equations (4) and (5), respectively:

$$\left[p_{it}/(1-p_{it})\right] = \exp\left(\beta_0 + \beta_1 + \beta_3 + \beta_5 + \beta_6 X_{it}\right) \quad (4)$$

Table 1. Demographics, Coverage, Access Problems, and Clinical Symptoms.

	Age 50-65 years (%)	Age 65+ years (%)	*p*
Demographics			
Male	46.2	41.8	.02
Non-Hispanic White	72.2	82.5	.00
Non-Hispanic Black	11.5	9.3	.16
Hispanic	9.6	3.9	.00
Other race/ethnicity	6.7	4.3	.07
Income			
FPL: <200%	17.2	26.5	.00
FPL: 200%-350%	21.5	29.4	.00
FPL: >than 350%	61.3	44.0	.00
Prescription and access problems			
Prescription coverage	83.0	74.1	.00
Public insurance	7.8	36.8	.00
Private insurance	75.1	37.3	.00
Access problems	14.2	9.0	.00
Clinical characteristics			
Serious or morbid symptom	40.2	54.4	.00

Note. FPL = federal poverty level. Age 65+ years represents the study group and age 50-64 years the comparison group. Table reports percentages of patients in each group. All percentages reflect weighted estimates. *p* Values are based on *F* statistic from adjusted Wald test and reflect whether differences are significant. Summary statistics based on the analysis sample (total sample; elderly persons; and near-elderly persons) of (4,123; 1,602; 2,521) representing a population of (4,812,129; 2,098,710; 2,713,420).

$$\left[p_{it} / (1 - p_{it}) \right] = \exp\left(\beta_0 + \beta_1 + \beta_6 X_{it} \right) \tag{5}$$

Accordingly, the OR for an elderly Hispanic person facing access problems relative to an elderly White person is $\exp(\beta_3 + \beta_5)$ and similarly the corresponding OR for an elderly Black person is $\exp(\beta_2 + \beta_4)$. The corresponding ORs reflecting racial disparities for near-elderly Hispanics and near-elderly Blacks (relative to near-elderly Whites) are $\exp(\beta_3)$ and $\exp(\beta_2)$, respectively. For examining racial disparities in cost-related access problems, and in coverage, we focus exclusively on these four ORs. We calculated the ORs, the RORs, and associated standard errors using logistic, logit, and lincom commands in STATA 12. All estimation was conducted in STATA 12 through processes accounting for the complex survey design.

Results

Descriptive Analysis

Table 1 examines differences in population characteristics and source of insurance between the elderly (n = 1,602) and comparison group (n = 2,521). The elderly comprises significantly higher proportions of females, and Whites and significantly lower

Table 2. Percentage of Study Population Having Prescription Drug Coverage, or Facing Access Problems.

	2001	2009	Difference	*p*
Elderly with any prescription coverage[a]	66.4	82.3	15.8	.00
Private insurance coverage	41.5	32.7	–8.8	.02
Public insurance coverage	25.0	49.6	24.6	.00
Near-elderly with any prescription coverage[b]	80.4	85.1	4.7	.08
Private insurance	72.3	77.3	5.0	.11
Public insurance	8.0	7.8	–0.3	.89
All elderly with access problems[a]	6.9	11.3	4.5	.05
With private insurance and access problems	1.6	1.5	–0.2	.78
With public insurance and access problems	2.1	9.1	7.0	.00
With no insurance and access problems	3.1	0.8	–2.3	.00
Near-elderly with access problems[b]	14.1	14.0	–0.1	.96
With private insurance and access problems	5.2	7.3	2.1	.15
With public insurance and access problems	2.7	2.4	–0.3	.81
With no insurance and access problems (14)	6.3	4.3	–2.0	.17

Note. Unweighted *N* = 4,142; weighted *N* = 4,843,172. Significance of differences based on an adjusted Wald test.

a. Figures in this panel represent percentages out of all elderly beneficiaries.

b. Figures in this panel represent percentages out of all near-elderly beneficiaries.

proportion of Hispanics. They also have significantly lower income, prescription coverage, and fewer cost-related access problems. For the overall sample, average age was 64 years; more than three quarters were White, around 11% were Black, and 7% Hispanic; 79% had prescription coverage and 12% reported access problems. The entire study sample was almost evenly split between the two time periods with 54% in the post policy year, 2009.

Although the near-elderly population had higher rates of prescription drug coverage in both 2001 and 2009, the elderly population experienced greater gains in coverage. Coverage increased by 15.8 percentage points for the elderly population versus 4.7 percentage points for the comparison group (Table 2). The gain in prescription drug coverage by the elderly was driven by a large increase in public coverage that was only partially offset by a reduction in private coverage. The likelihood of reporting prescription drug access problems increased significantly among the elderly (from 6.9% of the elderly in 2001 to 11.3% in 2009), while remaining unchanged in the comparison group. 3.1% of the elderly reported access problems and also were without insurance in 2001 and this decreased to 0.8% in 2009. Thus, out of elderly beneficiaries reporting access problems, almost half (44%) did not have prescription coverage in 2001, but only 7% were without coverage in 2009. Compared with the pre–Part D period, seniors reporting access problems were less likely to be privately insured and

Table 3. Effect of Part D on Elderly Coverage and Access Problems Derived From Logistic Regression.

	OR	*SE*	*p*
Coverage			
Elderly OR	2.42	.56	.00
DD estimate	1.97	.57	.02
Access problems			
Elderly OR	1.80	.46	.02
DD estimate	1.55	.48	.16

Note. DD = difference in differences; OR = odds ratio; SE = standard error. The elderly OR reflects the simple adjusted odds of having coverage or facing access problems in 2009 relative to 2001 for the 65+ population. The DD estimate is the ratio of this OR to that for the near-elderly population. Figures in this table are based on results from Table 4. Coverage regression in Table 4 controls for race/ethnicity. Estimates based on a specification that do not control for race/ethnicity are the following. Elderly *OR* = 2.26 ($p < .001$); DD estimate = 1.90 ($p = .03$).

more likely to be publicly insured, post–Part D. This change in the distribution of prescription insurance among beneficiaries facing cost-related access problems is due to a shift from private to public coverage, and also a higher prevalence of cost-related access problems among the publicly insured.

Econometric Analysis

Table 3 presents the increased odds of coverage or cost-related access problems for the elderly over 2001-2009. It also reports the DD estimates that are informative for examining how the elderly OR compares with that for the near-elderly comparison group. (These *OR*s are derived from the ORs in Table 4 from the multivariate logistic regression models predicting the likelihood of coverage and reporting access problems.) From 2001 to 2009, the adjusted odds of having prescription drug coverage increased by a factor of 2.42 among the elderly. When we adjusted this estimate for change in coverage among the near-elderly population, the DD estimate (ratio of the elderly OR to the near-elderly OR) remains greater than 1 and significant (*ROR* = 1.97; $p = .02$). The DD estimate thus indicates that the increase in odds of coverage among the elderly over 2001-2009 was twice as high as the increase in odds of coverage among the near-elderly population.

From 2001 to 2009, the odds of reporting prescription drug access problems by the elderly increased by a factor of 1.80 ($p = .02$; Table 3). The corresponding DD estimate shows that increase in the odds of access problems was higher for the elderly relative to nonelderly population, although this difference is not statistically significant (*ROR* = 1.55; $p = .16$).

Table 4 reports the detailed results from the logistic regressions. Persons above 350% of FPL had significantly higher odds of coverage compared with those in poverty (<100% FPL). Presence of a serious or morbid symptom (an indicator of poor

Table 4. Effect of Medicare Part D Policy on Prescription Coverage and Access Problems.

	Prescription coverage			Access problems		
	OR	*SE*	$p > \|t\|$	*OR*	*SE*	$p > \|t\|$
Elderly (age = 65+ years)	0.453	0.078	.000	0.381	0.077	.000
Post (year = 2009)	1.228	0.223	.259	1.164	0.220	.422
Post * Elderly	1.970	0.575	.020	1.546	0.483	.164
Male	0.857	0.086	.123	0.700	0.106	.018
FPL: 200%-350%	1.297	0.244	.167	0.620	0.122	.015
FPL: >350%	2.877	0.534	.000	0.264	0.051	.000
Serious/morbid symptom	1.376	0.180	.015	—	—	—
Non-Hispanic Black	0.676	0.148	.073	—	—	—
Hispanic	0.397	0.097	.000	—	—	—
Other race/ethnicity	1.302	0.443	.438	—	—	—
N unweighted	4123			4140		
N weighted	4,812,129			4,842,014		
F statistic	12.71			12.90		
Probabilty > *F*	0			0		

Note. FPL = federal poverty level; OR = odds ratio; *SE* = standard error.

health) increased likelihood of coverage. Cost-related access problems, were lower for high-income individuals, and males.

Table 5 examines racial and ethnic disparities in perceived access to prescription drugs and prescription drug coverage, separately for 2001 and 2009. For each year, it reports *OR*s that reflect the odds of reporting access problems, or having coverage for non-Hispanic Blacks and Hispanics relative to White individuals. These are calculated from the *OR*s generated by the multivariate logistic modeling of coverage and access problems for each individual year using methods detailed above (table not reported, Appendix A). We find that racial/ethnic disparities increased somewhat among elderly individuals, but decreased in terms of magnitude among near-elderly individuals. In 2009, elderly Blacks ($OR = 3.50$; $p = .02$) and elderly Hispanics ($OR = 3.12$; $p = .10$) had higher odds of reporting access problems relative to elderly Whites. These *OR*s were slightly higher in magnitude compared with the corresponding *OR*s in 2001 ($OR = 2.90$; $p = .01$ for elderly Blacks and $OR = 3.01$; $p = .08$ for elderly Hispanics; see Table 5). These racial disparities in access among the elderly cannot be explained by disparities in prescription coverage. In fact, in terms of magnitude, odds of having coverage was greater for minority elders compared with Whites though none of these were statistically significant.

We further examine access problems in Table 6, calculating increased odds of reporting access problems by family income. Access problems faced by minorities in the post–Part D era may arise from difficulties in navigating through complicated prescription drug plans (Haviland et al., 2012) resulting in suboptimal plan choice, not having access to information on low-cost options, and also language problems in the case of

Table 5. Odds of Having Access Problems, and Coverage in 2001 and 2009.

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Access problems						
Elderly NH Blacks	2.90	1.21	.01	3.50	1.81	.02
Elderly Hispanics	3.01	1.88	.08	3.12	2.18	.10
Near-elderly NH Blacks	1.39	0.46	.32	0.55	0.22	.13
Near-elderly Hispanics	2.16	0.75	.03	0.81	0.33	.61
Coverage						
Elderly NH Blacks	0.80	0.33	.60	1.39	0.81	.58
Elderly Hispanics	0.75	0.44	.62	3.16	2.63	.17
Near-elderly NH Blacks	0.29	0.11	.00	0.84	0.33	.67
Near-elderly Hispanics	0.19	0.07	.00	0.29	0.11	.00

Note. NH = non-Hispanic; OR = odds ratio: ORs reflect increased odds of having access problems or coverage relative to White respondents in that age category and year. These are derived from the estimated ORs for the race variables and the interactions between race and age from logistic regressions modeling coverage and access problems for each individual year using methods already described.

Table 6. Odds of Having Access Problems in 2001 and 2009 by Family Income.

	2009			2001		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Family income: 0%-350% of FPL						
Elderly NH Blacks	4.63	2.87	.01	3.89	1.75	.00
Elderly Hispanics	3.92	3.16	.09	1.97	1.46	.36
Near-elderly NH Blacks	0.61	0.29	.29	1.50	0.54	.25
Near-elderly Hispanics	0.89	0.46	.82	2.47	0.95	.02
Family income: Greater than 350% of FPL						
Elderly NH Blacks	1.40	1.47	.75	0.76	0.85	.80
Elderly Hispanics	0.90	1.01	.92	10.01	8.75	.01
Near-elderly NH Blacks	0.29	0.19	.05	0.74	0.59	.70
Near-elderly Hispanics	0.84	0.49	.77	0.37	0.40	.36

Note. NH = non-Hispanic; OR = odds ratio; *SE* = standard error; FPL = federal poverty level. ORs reflect increased odds of having access problems or coverage relative to White respondents in that age category and year. Figures in this table derived from the estimated ORs for the race variables and the interactions between race and elderly indicator as before, but modeled separately for the two income categories. We get similar results even after controlling for poverty (0%-100% FPL) in the lower income category.

some Hispanics (Haviland et al., 2012). We would expect these problems to be greater for minorities with lower socioeconomic status, which is proxied by family-income in our data. We find racial disparities in access for the elderly Part D eligible population belonging to the lower income category (0%-350% of FPL) but not for those in the

higher income category. To examine whether this represents an income effect arising from a higher proportion of minorities being in poverty, we ran an additional specification controlling for poverty (0%-100% of FPL) and our results were similar.

Finally, our sensitivity analyses (details in Appendix B) indicated that our findings are robust to alternative age-based definitions for the elderly and near-elderly groups. The increase in the rate of coverage over time was only marginally higher for the alternatively defined elderly and near-elderly group (1.9 and 0.9 percentage points, respectively). A similar pattern appeared for rates of access problems (1 percentage point for the elderly; unchanged for the near-elderly). Our findings on racial disparities are mostly consistent across the specifications. When we excluded individuals without health insurance, our main findings remained unchanged except that coverage rates increased among the near-elderly comparison population.

Discussion

We analyzed changes in prescription coverage and reported access problems among the elderly in New Jersey before and after the implementation of Medicare Part D. Although there was a definite increase in drug coverage among New Jersey seniors between 2001 and 2009, it did not translate into a decrease in reported access problems. To the contrary, we found an increase in cost-related prescription drug access problems among the elderly during the study period.

We believe that this increase could be the result of three contributing factors. First, the decrease in the percentage of elderly covered by private insurance from the pre– to post–Part D period suggests that seniors who previously had private drug coverage faced increased cost-sharing and, therefore, greater financial burden when they shifted to Part D coverage. The presence of cost-related access problems 3 years into Part D implementation implies that they are not transitory in nature and may arise from more fundamental aspects of the program related to inadequate financing. For the low-income population, such continuing access problems suggest inadequacy of current subsidies, for example, the federal "Extra Help" and New Jersey Pharmaceutical Assistance for the Aged and Disabled programs. Second, beneficiaries dually eligible for Medicare and Medicaid experienced a shift in their source of prescription coverage from Medicaid to Medicare and may have had problems associated with the more restrictive formularies under Part D plans. Third, newly enrolled high-need beneficiaries may have been more likely to report access problems than before because of unfulfilled expectations, that is, when they continued to face cost-based access problems even after having coverage.

We also found continuing racial disparities in cost-related prescription drug access between 2001 and 2009. One way to address such cost-related problems is through timely physician advice and prescriptions for low-cost medication options. These activities, while seemingly straightforward, may not be easily available because of persisting racial and ethnic disparities in physician care (Gaskin et al., 2007). Racial disparities in cost-related access may also persist when minorities face problems navigating the complex Part D plans (Haviland et al., 2012) resulting in suboptimal choice among plans that vary widely in premiums and cost-sharing while offering comparable benefits (Hoadley et al.,

2014). As reflected in our findings, some of these problems disproportionately affect minorities with low socioeconomic status. All these considerations reflect a salient finding that an increase in coverage among the elderly is not sufficient on its own for ameliorating cost-related access problems, especially among minority populations.

Demographic and disease prevalence trends underscore the importance of formulating policies aimed at addressing these problems. The Medicare population is becoming more racially and ethnically diverse with increasing numbers of Hispanics and African Americans (Medicare Payment Advisory Commission, 2013). These minority beneficiaries have high rates of chronic disease with multiple comorbid conditions and the effects of inadequate medication availability on these populations can be severe (Centers for Medicare & Medicaid Services, 2012). Policy should focus on adequately addressing affordability for patients who do not qualify for existing subsidies yet have modest incomes, and on increasing physicians' awareness and attention to their Medicare patients' cost-related access problems.

It is important to note that despite the overall increase in reported access problems among the elderly, a greater share of beneficiaries reporting problems had prescription drug coverage in 2009 compared with 2001. Such a trend may be partly explained by adverse selection where uninsured enrollees with the greatest medication needs enrolled disproportionately into Part D coverage. Our findings may thus reflect a positive effect of the policy where it shifted the high-need elderly population from being uninsured to being insured by Part D. Still, the benefits may have been insufficient, leaving some seniors reporting unmet prescription drug needs.

Our results are subject to limitations common to studies using population-based health surveys. First, respondents may not fully recall all the events about which they are asked and in some cases may be unwilling to admit nonadherence to prescription medications that arise because of their financial constraints. As a result, cost-related prescription drug access problems may be underreported. Although such recall problems can limit the accuracy of reported information, they would most likely not create a systematic bias in our analysis comparing these measures over time. Self-reporting may also underestimate the intensity of the access problems to the extent that the questions are based on any experience of an event but do not capture the frequency of the event. We have already outlined some caveats associated with the DD design, the most important being differential trends in the study and comparison group, prior to Part-D. Because of this, we focused on separately examining the effect of the policy on the elderly population alongside the DD estimates, and also conducted additional sensitivity analysis for robustness checks. Finally, our results are New Jersey specific, which may limit somewhat the generalizability of our findings. However, these findings are important for at least some states that provide wraparound coverage for low-income beneficiaries enrolled in Part D similar to the New Jersey SPAP. It is important to note that the New Jersey Pharmaceutical Assistance for the Aged and Disabled covered premiums, but only if the beneficiary-chosen plan's premium was lower than the benchmark rate for that region. So, again optimal plan choice was important to the availability of this subsidy. Furthermore, it only made partial payments for deductibles, copayments, and when patients entered the doughnut hole (Steinwald et al., 2008). The findings relating to cost-based access problems are thus consistent with the

presence of such policies and may be informative to other states with similar SPAPs in place, such as New York, Pennsylvania, Illinois, and Massachusetts.

Our study benefits from specific strengths of our survey data, notably the ability to distinguish patient nonadherence from filling of prescriptions claims. Sometimes when claims data indicate that a prescription was not filled, it may be possible that the patient had access to her medication from other sources. Alternatively, when claims data indicate that a prescription was filled, the patient may not have actually used their medications or may have used lower doses than prescribed. In these situations, survey data identify patient adherence with greater accuracy than is possible with claims-based information.

Conclusion

This study documents increase in prescription drug coverage and cost-based access problems in the early years of Medicare Part D. While the Affordable Care Act has initiated policy that will eventually close the doughnut hole, these changes reducing cost-sharing will be gradual over the next 6 years. Our findings support the need for these changes and suggest that a more rapid implementation would provide valuable benefits. Our results also point to persistent racial disparities in access and underscore the need for focused policies aimed at racial and ethnic minorities.

Appendix A

Odds of Experiencing Prescription Drug Access Problems in 2001 and 2009

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Elderly (age = 65+ years)	0.426	0.103	.000	0.368	0.104	.000
NH Black	1.386	0.458	.323	0.548	0.216	.127
Hispanic	2.159	0.750	.027	0.811	0.331	.608
Other race/ethnicity	2.428	1.296	.097	0.287	0.178	.044
Elderly * NH Black	2.090	1.103	.162	6.399	4.353	.006
Elderly * Hispanic	1.395	0.975	.633	3.852	3.117	.096
Elderly * Other race/ethnicity	0.378	0.362	.310	0.396	0.405	.365
Male	0.623	0.129	.022	0.672	0.143	.061
FPL: 200%-350%	0.813	0.186	.365	0.647	0.194	.146
FPL: >350%	0.337	0.087	.000	0.248	0.067	.000
N weighted	2,414,394			2,649,077		
N unweighted	1,778			2,504		
F statistic	5.77			5.49		
Probabilty > *F*	.000			0		

Note. OR = odds ratio; SE = standard error; NH = Non-Hispanic. ORs reflect increased odds of access problems for minorities relative to Whites who comprise the reference group.

Appendix B

Table B1.1. Percentage of Study Population Having Prescription Coverage or Facing Access Problems in 2001 and 2009.

	Original specification				Alternative specification			
	2001	2009	Difference	*p*	2001	2009	Difference	*p*
Elderly with any prescription coverage	66.4	82.3	15.8	.00	66.5	84.2	17.7	.00
Private insurance coverage	41.5	32.7	–8.8	.02	43.3	34.7	–8.6	.05
Public insurance coverage	25.0	49.6	24.6	.00	23.2	49.5	26.2	.00
Nonelderly with any prescription coverage	80.4	85.1	4.7	.08	79.5	85.1	5.6	.11
Private insurance coverage	72.3	77.3	5.0	.11	70.8	76.8	6.0	.16
Public insurance coverage	8.0	7.8	–0.3	.89	8.7	8.3	–0.4	.89
All elderly with access problems	6.9	11.3	4.5	.05	7.3	12.8	5.5	.03
With private insurance	1.6	1.5	–0.2	.78	2.1	2.0	–0.2	.85
With public insurance	2.1	9.1	7.0	.00	2.2	9.8	7.6	.00
With no insurance	3.1	0.8	–2.3	.00	2.9	1.1	–1.9	.05
Non-elderly with access problems	14.1	14.0	–0.1	.96	13.3	13.2	–0.1	.97
With private insurance	5.2	7.3	2.1	.15	3.9	6.8	2.8	.11
With public insurance	2.7	2.4	–0.3	.81	3.3	1.7	–1.6	.32
With no insurance	6.3	4.3	–2.0	.17	6.1	4.7	–1.4	.46

Note. Original specification: elderly are aged 65 years and older, near-elderly are aged between 50 and 64 years. In the alternative specification, elderly are between ages 65 and 80 years and the near-elderly between ages 55 and 64 years.

Table B1.2. Percentage of the Population With Health Insurance Having Prescription Coverage or Facing Access Problems in 2001 and 2009.

	2001	2009	Difference	*p*
Elderly with prescription coverage	66.9	84.0	17.1	.00
Private insurance	41.8	33.4	–8.4	.03
Public insurance	25.2	50.7	25.5	.00

(continued)

Table B1.2 (continued)

	2001	2009	Difference	*p*
Nonelderly with prescription coverage	91.4	96.3	5.0	.00
Private insurance	82.2	87.5	5.3	.05
Public insurance	9.1	8.8	–0.3	.88
Elderly with access problems	6.9	11.5	4.7	.04
Private insurance	1.7	1.5	–0.2	.80
Public insurance	2.1	9.3	7.1	.00
No insurance	3.1	0.8	–2.3	.00
Nonelderly with access problems	10.9	11.4	0.5	.81
Private insurance	5.9	8.3	2.4	.15
Public insurance	3.0	2.7	–0.3	.81
No insurance	2.0	0.4	–1.5	.02

Note. All respondents who did not have health insurance were excluded. Elderly are aged 65 years and older, nonelderly are aged between 50 and 64 years.

Table B2.1. Effect of Part D on Elderly Coverage and Access Problem.

	OR	*SE*	*p*
Coverage			
Elderly odds ratio	2.37	0.54	.00
DD estimate	1.89	0.61	.05
Access problems			
Elderly odds ratio	1.79	0.45	.02
DD estimate	1.56	0.55	.21

Note. OR = odds ratio; SE = standard error; DD = difference in differences. Elderly age: 65+ years; nonelderly age: 55-64 years.

Table B2.2. Effect of Part D on Elderly Coverage and Access Problem.

	OR	*SE*	*p*
Coverage			
Elderly odds ratio	2.85	0.76	.00
DD estimate	2.36	0.83	.02
Access problems			
Elderly odds ratio	1.96	0.52	.01
DD estimate	1.70	0.62	.14

Note. DD = difference in differences; OR = odds ratio; SE = standard error. Elderly age: 65-80 years; nonelderly age: 55-64 years.

Table B2.3. Effect of Part D on Elderly Coverage and Access Problem.

	OR	*SE*	*p*
Coverage			
Elderly odds ratio	2.53	0.58	.00
DD estimate	1.09	0.41	.82
Access problems			
Elderly odds ratio	1.81	0.46	.02
DD estimate	1.50	0.50	.22

Note. OR = odds ratio; SE = standard error; DD = difference in differences. All respondents who did not have health insurance were excluded. Elderly are aged 65 years and older, nonelderly are between ages 50 and 64 years.

Table B3.1. Odds of Having Access Problems in 2001 and 2009.

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Elderly NH Blacks	2.26	1.01	.07	3.02	1.65	.04
Elderly Hispanics	3.09	1.86	.06	3.17	2.24	.10
Nonelderly NH Blacks	2.22	0.96	.06	1.06	0.47	.90
Nonelderly Hispanics	2.90	1.65	.06	0.68	0.42	.54

Note. NH = non-Hispanic; OR = odds ratio; SE = standard error. Elderly age: 65+ years; nonelderly age: 55-64 years.

Table B3.2. Odds of Having Access Problems in 2001 and 2009.

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Elderly NH Blacks	2.22	1.11	.11	3.28	1.87	.04
Elderly Hispanics	3.08	1.97	.08	2.22	1.46	.23
Nonelderly NH Blacks	2.13	0.91	.08	1.07	0.47	.87
Nonelderly Hispanics	2.77	1.58	.07	0.69	0.43	.55

Note. NH = non-Hispanic; OR = odds ratio; SE = standard error. Elderly age: 65-80 years; nonelderly age: 55-64 years.

Table B3.3. Specification 4: Odds of Having Access Problems in 2001 and 2009.

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Elderly NH Blacks	2.26	1.04	.08	3.04	1.68	.04
Elderly Hispanics	3.75	2.33	.03	3.34	2.33	.08

(continued)

Table B3.3. (continued)

	2001			2009		
	OR	*SE*	*p*	*OR*	*SE*	*p*
Nonelderly NH Blacks	1.62	0.70	.26	0.39	0.21	.08
Nonelderly Hispanics	1.58	0.85	.40	1.35	0.61	.50

Note. NH = non-Hispanic; OR = odds ratio; SE = standard error. All respondents who did not have health insurance were excluded. Elderly are aged 65 years and older; nonelderly are aged between 50 and 64 years.

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