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Brand-Name Prescription Drug Use Among Diabetes Patients in the VA and Medicare Part D: A National Comparison

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Abstract

Background—Medicare Part D and the Department of Veterans Affairs (VA) use different approaches to manage prescription drug benefits, with implications for spending. Medicare relies on private plans with distinct formularies, whereas VA administers its own benefit using a national formulary.

Objective—To compare overall and regional rates of brand-name drug use among older adults with diabetes in Medicare and VA.

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Design—Retrospective cohort

Setting—Medicare and VA

Patients—National sample in 2008 of 1,061,095 Part D beneficiaries and 510,485 Veterans age 65+ with diabetes.

Measurements—Percent of patients on oral hypoglycemics, statins, and angiotensin-converting-enzyme inhibitors/angiotensin-receptor-blockers who filled brand-name drugs and percent of patients on long-acting insulin who filled analogues. We compared sociodemographic and health-status adjusted hospital referral region (HRR) brand-name use to examine local practice patterns, and calculated changes in spending if each system's brand-name use mirrored the other.

Results—Brand-name use in Medicare was 2–3 times that of VA: 35.3% vs. 12.7% for oral hypoglycemics, 50.7% vs. 18.2% for statins, 42.5% vs. 20.8% for angiotensin-converting-enzyme inhibitors/angiotensin-receptor-blockers, and 75.1% vs. 27.0% for insulin analogues. Adjusted HRR brand-name statin use ranged (5^{th} to 95^{th} percentile) from 41.0%–58.3% in Medicare and 6.2%–38.2% in VA. For each drug group, the HRR at the 95^{th} percentile in VA had lower brand-name use than the 5^{th} percentile HRR in Medicare. Medicare spending in this population would have been $1.4 billion less if brand-name use matched the VA for these medications.

Limitation—This analysis cannot fully describe the factors underlying differences in brand-name use.

Conclusions—Medicare beneficiaries with diabetes use 2–3 times more brand-name drugs than a comparable group within VA, at substantial excess cost.

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Introduction

Medicare's Part D drug benefit provides drug coverage to nearly 30 million beneficiaries, at an annual cost of almost $60 billion.(1) Although Part D has lowered out-of-pocket costs,(2) and improved treatment adherence(3–7) and health outcomes,(8, 9) there is evidence of inefficiency. For example, per capita prescription drug spending in Part D varies more than twofold across hospital referral regions, with 75% of the difference due to variation in use of more expensive drugs.(8) In principle, greater reliance on generic drugs in Medicare could save taxpayers substantial sums without compromising care. However, the mechanisms for achieving these savings, and their potential magnitude, are unknown. Looking to other systems that have achieved greater generic use may provide insight.

Medicare contracts with over 1,000 private plans to administer drug benefits, each using a distinct formulary and cost-sharing arrangement.(9) Other public payers, such as the Department of Veterans Affairs (VA), have taken a different approach. All veterans face the same low cost-sharing, and benefits are managed by a central pharmacy benefits manager (PBM) with a single formulary. This national formulary has substantially lowered pharmacy spending for the VA,(10) although studies suggest that facility-level variation persists in use of certain brand-name drugs.(11, 12)

Comparing medication use and regional variation across these two national payers could shed light on ways to improve efficiency in Medicare Part D, at a time when the federal government is facing substantial budget pressures and seeking ways to reduce costs without undermining quality.(13–15) Prior studies have focused on comparing medication prices between VA and Medicare,(16–18) but not medication choice, which can play just as large a role in determining spending. We constructed two national cohorts of older adults receiving

drug benefits in either Medicare Part D or the VA with diabetes, a common chronic condition with high medication use and a wide range of available therapies.(19) We compared use of brand- name medications among patients overall and by geographic region, and estimated how spending would change if use of brand-name drugs in one system mirrored the other.

Methods

Data Sources and Sample

The Medicare cohort was defined using Medicare Denominator, Parts A, B, and Prescription Drug Event (PDE) files for a 40% random sample. We included beneficiaries who (1) were alive and continuously enrolled in fee-for-service Medicare and a stand-alone prescription drug plan from January 1 to December 31, 2008, (2) were ≥age 65, and (3) had ≥2 inpatient or outpatient diagnoses for type 2 diabetes (ICD-9 250.x0, 250.x2) or filled an oral diabetes medication in 2008.(20) We excluded individuals in Medicare Advantage plans because our data did not include all of their claims. We created an identically-defined national cohort of Veterans using 2008 national Medical SAS Datasets, VA data on outpatient prescriptions, and enrollment data. From both cohorts, we excluded individuals whose home address could not be linked by ZIP code to a Dartmouth Atlas of Healthcare Hospital Referral Region(HRR)(21) and individuals with evidence of lengthy institutionalization (either ≥90-day stay in a VA nursing home or receipt of ≥25% of Part D prescriptions from a long-term care pharmacy).

Study Outcomes

We focused on four medication groups commonly used by patients with diabetes: oral hypoglycemics, long-acting insulins, HMG-CoA reductase inhibitors (statins), and angiotensin-converting-enzyme inhibitors (ACE)/angiotensin receptor blockers (ARB). Oral prescriptions were categorized as brand-name or generic using LexiComp Multum.(22) Insulin used as basal coverage was deemed ‘long-acting’ and categorized as “analogue” (e.g. glargine and detemir) or “non-analogue” (e.g., NPH insulin) to parallel cost differences for brand-name and generic oral medications (**Online Appendix Table 1**).(23) In VA, during our study period, all brand-name drugs among these oral medications were non-formulary, available only with prior authorization;(12) long-acting insulin analogues, however, were on the VA formulary with few restrictions.

For both cohorts, we measured the proportion of patients with ≥1 fill for a brand-name medication (or analogue insulin) for each medication group. We also calculated the percent of standardized 30-day prescriptions dispensed as brand for oral products and the percent of units dispensed as analogues for insulin.

Patient Covariates

We used residential ZIP codes to assign patients to one of 306 HRRs, as others have done in prior analyses of geographic variation.(8, 24, 25) To adjust estimates of brand-name use for patient differences across HRRs in each system, we identically constructed variables for age, gender, race (black, white, Hispanic, other), a count of chronic conditions (excluding diabetes),(26) count of diabetes complications (diabetic retinopathy, nephropathy, neuropathy, and diabetes-associated peripheral vascular disorder),(27) count of unique oral diabetes medications, and presence of serious mental illness (schizophrenia/schizoaffective and bipolar disorders, delusion and paranoid disorders, other psychoses). We assigned household incomes based on ZIP code-level median incomes from a 2006 extrapolation of 2000 Census data.(21, 28) To account for within-system differences in cost-sharing, we

created an indicator in Medicare for Part D low-income subsidy status and in VA for individuals with no prescription copay.

Analysis

Analyses were performed identically for Medicare and VA cohorts. We calculated the proportion of patients using any brand-name drug of interest (or analogue insulin) nationally. We obtained crude HRR-level rates of brand and analogue use, and then estimated adjusted rates, or probabilities, for each HRR using multivariable logistic regression models specifying weights for the coefficients across the classification effects proportional to those in the Medicare or VA population (Proc Genmod, lsmeans/om). The model was performed at the patient level, including the covariates described above and indicators for each HRR. We compared adjusted HRR-level brand-name use between Medicare and VA using distributional dot plots. Because unadjusted and adjusted rates were nearly identical within each cohort (correlation $r>0.93$), we only present adjusted rates.

We quantified the effect of differences in brand-name use on drug spending by comparing actual spending to estimated spending if Medicare and VA were to adopt the other system's rate of brand/analogue use. To calculate actual spending, we first calculated the mean amount paid ('cost') in 2008 for 30-day supplies of medications for brand and generic drugs separately. Medicare cost data include total reimbursements to the pharmacy, (i.e., plan payment, consumer copayment and dispensing fee) whereas the VA pharmacy data include only ingredient costs; we added patient copayments and an average dispensing fee obtained from the VA PBM to the cost of each VA prescription. These additions to VA costs serve to make Medicare and VA costs more comparable for descriptive purposes, but ultimately we did not focus on these price difference in our analysis. Our focus was on the *within system* change in spending if utilization of brand-name drugs changed while prices stayed the same. To remove the effect of price outliers, we set any cost per prescription less than the 1^{st} percentile equal to the 1^{st} percentile, and any cost greater than the 99^{th} percentile equal to the 99^{th} percentile.

We calculated total spending for each oral medication group as = [(total prescriptions*percent brand-name*mean cost per brand-name prescription) + (total prescriptions*percent generic*mean cost per generic prescription)]. For insulins, we used a similar approach but calculated spending based on units dispensed and the mean cost for analogues and non-analogues. To estimate the effect of only changing rates of brand-name use in Medicare and VA, we held constant each system's volume and cost per prescription (or unit) while adopting the other system's rate of brand/analogue use. Total expenditures in Medicare were projected onto the entire stand-alone Part D population by multiplying spending for the 40% sample by 2.5.

We performed two sensitivity analyses. First, we repeated analyses limiting both samples to men. Second, to limit the possibility of overlap in prescription use in VA and Medicare for those with dual coverage, we excluded Veterans also enrolled in Medicare Part D (29%) and repeated our analysis; we also completed an analysis excluding Veterans enrolled in Part D who also had a Medicare physician visit in 2008 (11.2%), assuming these individuals would be more likely to fill a prescription through Part D. Finally, as an additional analysis, we examined separately the subgroup of prescriptions that are multisource drugs, which are available in both brand-name and generic forms (in contrast to single-source drugs, which have no direct generic substitute). All analyses were carried out using SAS version 9.2 (SAS Institute Inc, Cary, NC) and STATA 11 (College Station, TX).

Role of the Funding Source

Funding for this study was provided by The Department of Veterans Affairs, NIH, and Robert Wood Johnson Foundation, who had no role in the study design, conduct and analysis, nor in the decision to submit the manuscript.

Results

Our sample included 1,061,095 Medicare Part D beneficiaries and 510,485 Veterans with diabetes. Mean patient age was 74.6 in Medicare and 75.0 in VA, and VA patients were predominately (98.6%) male (Table 1). Compared to VA, the Medicare cohort had a slightly higher proportion with no comorbid conditions (52.4% vs. 48.9%) and no diabetes complications (82.1% vs. 75.8%) but also a higher proportion with 3 or more comorbidities (10.6% vs. 6.7%). While the proportion of each cohort using oral hypoglycemics and long-acting insulin was nearly identical, Medicare patients were less likely to use statins (63.0% vs. 75.5%) or ACE/ARBs (69.1% vs. 73.1%), compared to VA patients (Table 1).

Variation in Brand-Name Use

In unadjusted analyses, Medicare beneficiaries taking oral hypoglycemics were nearly three times more likely to use a brand-name drug than VA patients (35.3% vs. 12.7%). Similarly, among those using long-acting insulins, 75.1% in Medicare used analogues compared to only 27.0% in VA. Between-system differences in use of brand-name statins (50.7% vs. 18.2%) and ACE/ARBs (42.5% vs. 20.8%) were of similar magnitude. These differences in brand-name use were almost identical in sensitivity analyses focusing on men only and in analyses that excluded from the VA cohort Veterans dually enrolled in Part D (**Online Appendix Tables 2–4**).

After adjustment for patient characteristics, there was substantial regional variation in brand-name use within each of the four drug groups in both systems (Figure 1). In Medicare, the percent using any brand-name oral hypoglycemics ranged from 25.1% in the 5th percentile to 42.4% in the 95th percentile of HRRs; in VA, the range from 5th to 95th percentile was 5.1%–21.9%. Similarly, in Medicare, HRR-level use of any insulin analogues ranged from 68.3%–85.4%, compared to a range of 10.6%–46.9% in the VA. Similar regional variation was evident for statins (range 41.0%–58.3% for Medicare and 6.2%–38.2% for VA) and ACE/ARBs (range 31.1–51.1 for Medicare and 12.7%–31.0% for VA) (Figure 1). In each drug group, the HRR at the 95th percentile of brand-name use in VA had lower rates of brand-name use than the HRR at the 5th percentile in Medicare.

Use of brand-name drugs was greater in Medicare than VA in 298 of 306 HRRs, but there was substantial variation in these differences (Figure 2). Most notably, in 3 HRRs the proportion of patients using brand-name statins was >10 percentage points higher in VA than in Medicare. These outlier HRRs were geographically clustered in a small area of the country within one VA regional network.

Multisource Drugs

Use of multisource drugs (medications available in both brand and generic forms) was substantially higher in VA than in Medicare (92.2% vs. 77.4% of all prescriptions for oral hypoglycemics, 89.8% vs. 54.7% for statins, and 80.2% vs. 64.9% for ACE/ARBs) (Table 2). However, for the most common multisource drugs, prescriptions were dispensed primarily as generics in both Medicare and VA.

Spending Calculations with Changes in Brand-Name Use

Table 3 shows the per-capita volume of prescriptions filled among users of each medication group, which was slightly lower in Medicare than in VA, whereas per capita drug costs were substantially higher. Across the four drug groups, drug spending in stand-alone Part D would have been $1.4 billion less (39%) in 2008 if brand-name use had resembled that of VA, keeping volume and price unchanged (savings of $589 million for oral hypoglycemics, $189 million for insulins, $404 million for statins, and $183 million for ACE/ARBs) (Figure 3). Conversely, spending in VA (where prices are substantially lower) would have increased by $108 million (57%) if patients used brand-name drugs at the same rate as in Medicare.

Discussion

Our analysis of over 1 million Medicare Part D beneficiaries with diabetes and an identically-defined cohort of older VA patients reveals stark differences in rates of brand-name medication use. Medicare beneficiaries are more than twice as likely to use brand-name drugs across four groups of commonly used medications. Had Medicare's medication use patterns mirrored those of VA for these medications in those with diabetes alone, the program could have saved over $1 billion in 2008. Yet, we observed similarly wide regional variation in brand-name use in both systems, suggesting that non-health system factors play a major role in such variation.

Our study is the first to demonstrate the magnitude of difference in brand versus generic prescribing between Medicare and VA among a comparable population. These findings point to opportunities for improving efficiency without harming quality of care or access to effective medicines. Although we cannot determine the optimal rate of brand-name use in either system, there is no evidence to suggest the differences we report reflect underuse of brand-name drugs in VA.(29–32) In fact, VA provides a reasonable benchmark for use of generic drugs in Medicare because it performs as well or better than commercial health plans and Medicare on several measures of quality for diabetes and related conditions.(29–32)

Furthermore, there is strong evidence of comparable effectiveness of generic versus brand-name drugs in the classes we studied.(33–36) For example, generic and brand-name statins have been shown to be equally effective for clinical endpoints.(34, 36) Any indication for a more potent, brand-name statin (e.g., insufficient lipid lowering with generic statin) is unlikely to be substantially more prevalent in Medicare than in VA. Similarly, although some clinicians recommend insulin analogues to individual patients over NPH insulin because of lower rates of symptomatic nocturnal hypoglycemia, their overall effectiveness is comparable,(33) and differences in prevalence of nocturnal hypoglycemia alone are unlikely to explain why three of every four Medicare patients on insulin use an analogue vs. one of four VA patients.

One structural factor that likely explains much of the between-system difference in brand-name use is the VA's ability to promote 'therapeutic substitution' by prescribers using a national formulary. Therapeutic substitution is the interchange by clinicians of generic drugs in the same class as, but not identical to, single-source brand-name drugs (e.g., generic simvastatin instead of brand atorvastatin (Lipitor). This practice is distinct from mere 'generic substitution,' in which brand and generic versions of the same drug are substituted (e.g., switching simvastatin for Zocor). Our analysis of multisource drugs suggests that the source of the different rates of brand-name drug use in VA and Medicare is a difference in the use of single-source drugs, and not a difference in generic substitution among multisource drugs; generic substitution is, in fact, comparable in the two systems. In addition to its formulary, the existence of a national electronic medical record with e-

prescribing, limits on access by pharmaceutical sales representatives, and a salaried physician workforce may explain these lower rates of brand-name use in VA.

Part D plans also have tools at their disposal for encouraging use of less costly drugs (e.g., placing brand-name drugs on high cost-sharing tiers, applying utilization management, or excluding drugs from the formulary), but they have applied them less extensively than VA. For example, only 8%, 12%, and 61% of Part D enrollees faced step therapy requirements for atorvastatin, valsartan, and pioglitazone in 2011, respectively, and none faced prior authorization.(37) In contrast, all VA enrollees faced step therapy and prior authorization requirements for these drugs. Part D plans may lack the incentives to apply these tools. In the current system, private Part D plans, which compete with each other to enroll members, may lose market share if they restrict the use of widely used drugs and also may lose rebates on these drugs from pharmaceutical manufacturers.(38)

Although a change in legislation to make Part D function like VA may be neither politically feasible nor warranted, policy levers for increasing appropriate use of generic medications in Part D are currently available. The Center for Medicare and Medicaid Innovation is currently experimenting with pilot projects to increase efficiency in the Medicare program. Part D plans are currently rated and rewarded based on measures of customer service, patient safety and medication adherence.(39) These existing pilot project and incentive mechanisms could be used to reward greater efficiency as well.

Our analyses also demonstrate similarly wide regional variation in the use of brand-name drugs in both systems, even after adjusting for important differences in patient demographics and health status. That the magnitude of the variation was similar between the two systems indicates that while VA's central formulary has reduced the average rate of brand-name use, it has not eliminated geographic variation. This may be due, in part, to VA's prior authorization policy, through which patients and their providers can request off-formulary brand-name medications, a process that is adjudicated locally, not centrally. Local physician practice patterns, determined by a complex yet poorly understood set of factors including the supply of specialists, academic affiliations, social and professional physician networks, and prescription drug marketing, may also contribute to geographic variation in brand-name use seen in both systems.(40, 41)

Our study has several limitations. First, there may be unmeasured differences in the populations being compared. However, potential unmeasured differences across Medicare and VA are unlikely to explain these large differences in brand-name drug use. Second, while some individuals filled prescriptions in both Medicare and VA, when we excluded dually enrolled Veterans with Part D from our analysis, our results were unchanged. Third, we cannot estimate the effect of discount pharmacies offering $4 generics on our findings, because in both VA and Medicare some individuals could purchase $4 generics for cash without generating an insurance claim.(42, 43) Fourth, we may overestimate potential savings as some of the brand-name drugs in our analysis have lost patent protection since our study year (2008); however, similar patterns of brand-name use likely exist among other drug groups. Fifth, we are unable to account for rebates negotiated with manufacturers by Medicare plans, which are not publicly available. Incorporating rebates in our analyses could reduce Medicare brand-name drug spending by up to approximately 19% based on one analysis;(38) nonetheless, the magnitude of our savings estimate would still be over $1 billion. Sixth, we estimate savings associated with changing only use of brand-name drugs, holding prices constant in each system. Estimates of cost-savings for Medicare would be larger were it feasible to obtain VA prices, although the government is specifically forbidden from negotiating drug prices on behalf of the Medicare program.(17, 18) Finally, our analyses also assume no behavioral response by the pharmaceutical industry, which

when faced with lower sales in Medicare might change its pricing or other marketing strategies, nor do we account for any potential indirect costs associated with brand-name use (e.g. lower adherence).(44–46)

In conclusion, we find large differences in rates of brand-name drug use among patients with diabetes in Medicare Part D and VA, with substantial economic implications. These differences likely reflect structural differences in formulary management between the two systems. For four medication groups alone, we estimate over a billion dollars of potentially avoidable spending on brand-name drugs in 2008 in Medicare Part D. Importantly, our findings draw on actual rates of generic use in an existing high-performing, high-quality health system and demonstrate what should be attainable in Medicare. These potential savings could be realized through policies that promote Part D plan efficiency and by encouraging physicians to consider costs and value in their prescribing.(14, 47–51)

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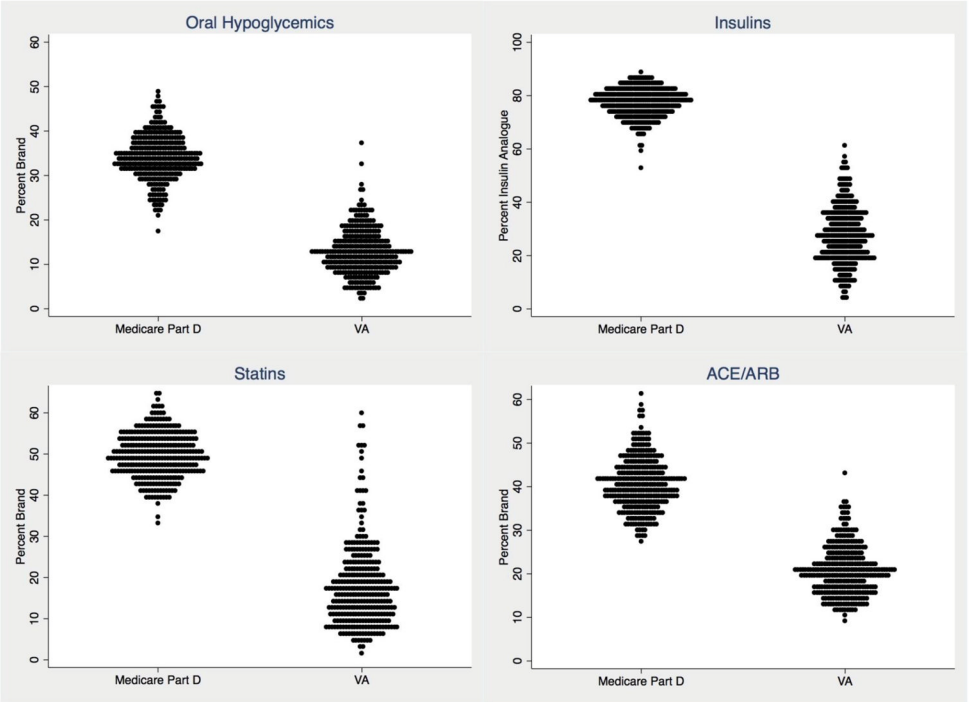

Figure 1.

Distribution of adjusted HRR-level percent of patients with diabetes in Medicare Part D and the VA using brand-name drugs (and insulin analogues), among users of four groups of medications, 2008.

Notes

Each dot is one HRR (hospital referral region), and all HRR percents are adjusted for sociodemographic and health status variables.

Abbreviations: Statins, HMG-CoA reductase inhibitors; ACE/ARB, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker.

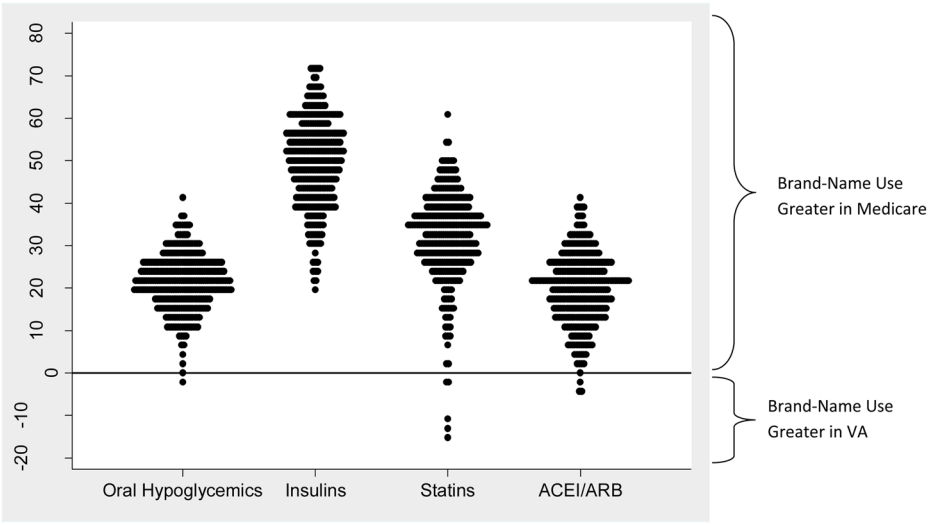

Figure 2.

Absolute difference, within each HRR, in adjusted percent of diabetes patients age 65+ in Medicare Part D and the VA using brand-name drugs, among users of four groups of medications, 2008.

Notes

Each dot is one HRR (hospital referral region), and all HRR percents are adjusted for sociodemographic and health status variables. More positive differences indicate higher rates of brand-name use in Medicare compared to VA in a given HRR.

Abbreviations: Statins, HMG-CoA reductase inhibitors; ACE/ARB, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker.

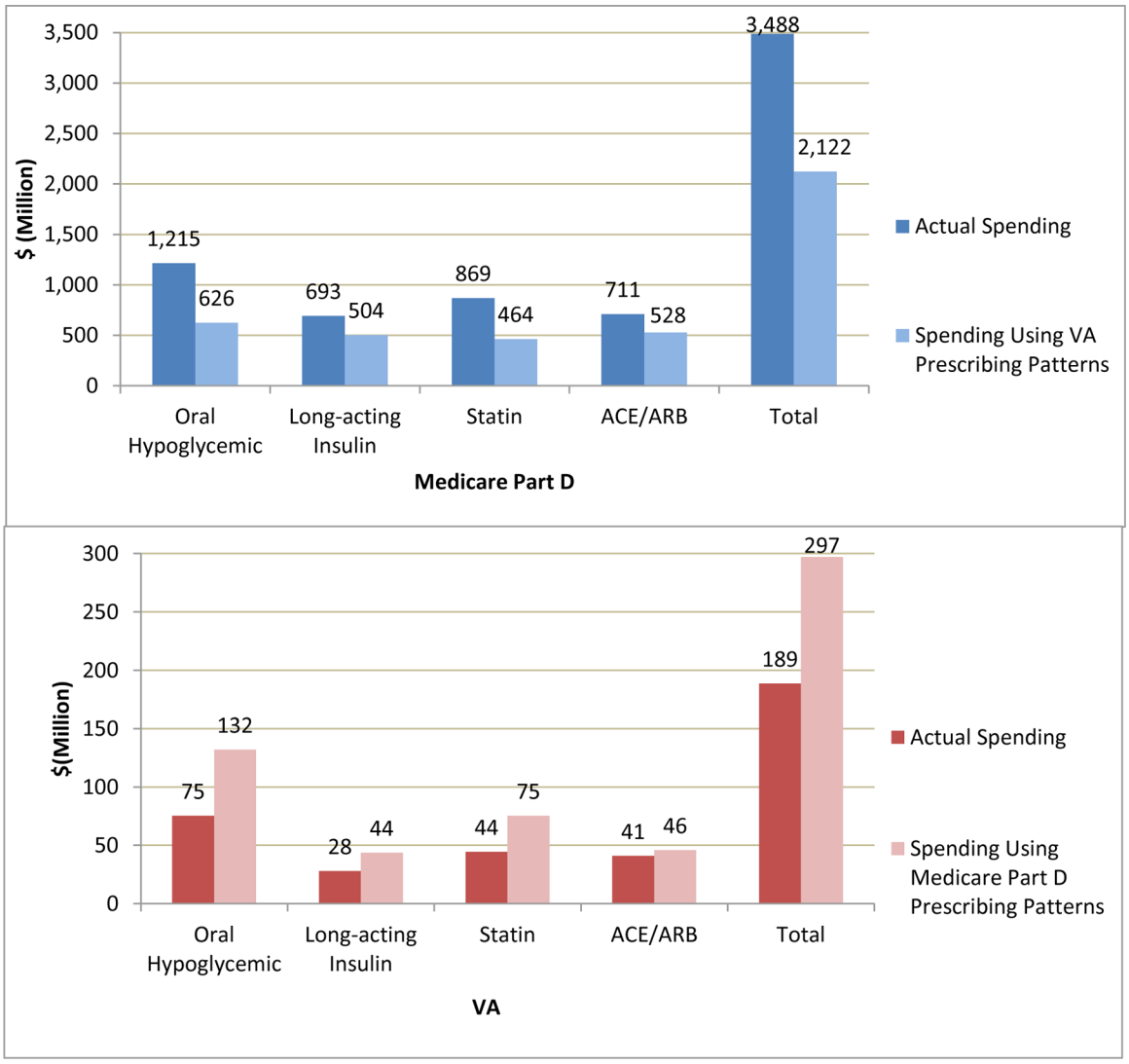

Figure 3.

Prescription spending and projected spending if use of brand-name drugs would change, in each of four drug groups among diabetes patients age 65+ in Medicare Part D (top) and the VA (bottom), 2008.

Notes

Medicare refers to patients enrolled in fee-for-service Parts A, B and stand-alone Part D. Abbreviations: Statins, HMG-CoA reductase inhibitors; ACE/ARB, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker.

Table 1

Characteristics of diabetes patients age 65+ in Medicare Part D and the VA, overall and within medication group, 2008.*

	Overall		Oral Hypoglycemics		Long-Acting Insulin		Statin		ACE/ARB	
Cohort Characteristics	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**
N (%)	1,061,095 (100.0)	510,485 (100)	780,738 (73.6)	377,435 (73.9)	231,869 (21.9)	113,736 (22.3)	668,989 (63.0)	385,196 (75.5)	733,176 (69.1)	373,321 (73.1)
Mean age (SD)	74.6 (6.9)	75.0 (6.4)	74.4 (6.8)	74.8 (6.4)	74.0 (6.7)	74.0 (6.2)	74.2 (6.6)	74.8 (6.3)	74.4 (6.8)	74.7 (6.3)
Male, %	38.1	98.6	38.7	98.7	36.0	98.7	38.6	98.7	37.1	98.7
Race/ethnicity, %										
White	78.2	86.5	78.1	87.3	74.6	83.1	78.3	86.9	77.0	86.0
Black	12.1	10.3	11.5	9.6	16.1	13.5	11.5	10.0	12.9	10.8
Hispanic	3.8	0.9	4.1	0.9	4.7	1.1	3.9	0.9	4.1	1.0
Other	5.9	2.3	6.3	2.2	4.5	2.3	6.3	2.2	6.1	2.3
Charlson comorbidity count [a]										
0	52.4	48.9	56.0	51.3	37.9	38.4	53.0	47.8	52.8	48.3
1–2	37.0	44.4	35.3	43.1	43.3	49.8	36.3	45.0	36.6	44.6
≥3	10.6	6.7	8.7	5.6	18.8	11.8	10.7	7.2	10.7	7.1
Serious mental illness, % [b]	2.1	2.1	1.9	2.0	3.1	2.4	1.8	2.1	1.9	2.0
Number of diabetes complications, %										
0	82.1	75.8	83.1	77.8	66.2	55.5	81.2	75.3	81.1	74.5
1–2	17.3	23.4	16.5	21.7	31.8	42.0	18.1	23.9	18.3	24.7
3+	0.6	0.7	0.5	0.5	2.0	2.4	0.7	0.8	0.7	0.8
Number of oral diabetes medications, %										
0	26.4	26.1	0.0	0.0	41.9	40.7	22.8	11.0	23.1	11.1
1	43.9	45.4	59.7	61.5	34.4	37.3	44.1	53.3	44.2	52.4
2	22.9	24.5	31.2	33.1	18.0	19.0	25.1	30.4	25.0	31.1
3	6.0	3.8	8.2	5.2	4.9	2.8	7.1	5.1	6.8	5.1
4+	0.7	0.2	1.0	0.3	0.8	0.1	0.9	0.3	0.9	0.3
Estimated household income, $[c]	50,863	50,007	50,821	49,826	49,062	48,762	51,425	50,122	50,708	49,790

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	Overall		Oral Hypoglycemics		Long-Acting Insulin		Statin		ACE/ARB	
Cohort Characteristics	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**
No or limited copay, %[d]	42.5	31.5	42.5	30.8	53.1	35.2	42.7	30.5	43.7	31.9

Notes

[*] Medicare refers to patients enrolled in fee-for-service Parts A, B and stand-alone Part D. Statin denotes HMG-CoA reductase inhibitors, ACE denotes angiotensin-converting enzyme inhibitors, and ARB denotes angiotensin receptor blocker.

[a] The count of Charlson comorbidities excludes diabetes.

[b] Serious mental illness is defined based on presence of an ICD-9 code for schizophrenia/schizoaffective disorder, bipolar, delusion and paranoid disorders, and other nonorganic psychoses.

[c] Household income estimates are based on ZIP code median incomes from a 2006 extrapolation of 2000 Census data.

[d] In Part D we measure the percent with a full year of low-income subsidy, and in VA we measure the percent without any copay for the entire year.

Table 2

Number of multisource prescriptions dispensed in three classes and percent dispensed as brand-name among diabetes patients age 65+ in Medicare Part D and the VA, 2008.

	Number (%) of Prescriptions Filled for Multisource Medications		Percent of Multisource Medications Filled as Brand-Name	
Drug Classes and Select Multisource Drugs*	**Medicare**	**VA**	**Medicare**	**VA**
Oral Hypoglycemics (overall)	**N=10,385,905**	**N=5,098,778**	-	-
Multisource Hypoglycemics	8,039,310 (77.4%)	4,701,283 (92.2%)	1.1%	0.2%
Metformin	3,858,287 (37.1)	2,178,778 (42.7)	1.3	0.1
Glipizide	1,761,020 (17.0)	1,341,495 (26.3)	0.8	0.1
Glyburide	1,005,586 (9.7)	1,105,382 (21.7)	0.4	0.3
Statins (Overall)	**N=6,095,802**	**N=3,880,351**	-	-
Multisource Statins	3,335,724 (54.7%)	3,483,255 (89.8%)	0.5	2.3
Simvastatin	2,391,498 (39.2)	3,152,515 (81.2)	0.4	2.5
Lovastatin	526,221 (8.6)	183,289 (4.7)	0.9	0.02
Pravastatin	418,005 (6.9)	147,451 (3.8)	0.8	0.6
ACE/ARBS (Overall)	**N=7,274,793**	**N=3,907,993**	-	-
Multisource ACE/ARBS	4,724,142 (64.9%)	3,136,052 (80.2%)	4.2	0.3
Lisinopril	2,224,565 (30.6)	2,493,730 (63.8)	0.2	0.01
Enalapril	531,402 (7.3)	145,615 (3.7)	0.5	0.08
Lisinopril/HCTZ	354,640 (4.9)	237,225 (6.1)	0.4	0.1

Notes

* The top 3 multisource drugs within Medicare are included for each class of oral medications. For statins, there were only three multisource drugs, which are listed. For ACE/ARBs, benazepril/amlodipine was the 3rd most commonly dispensed multisource drug but was not included for comparison because only 535 prescriptions were dispensed within VA. Medicare refers to patients enrolled in fee-for-service Parts A, B and stand-alone Part D.

Abbreviations: Statins, HMG-CoA reductase inhibitors; ACE/ARB, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker, HCTZ, Hydrochlorothiazide

Table 3

Total number of dispensed prescriptions, percent of prescriptions dispensed as brand-name, and mean cost per prescription, in each of four drug groups among diabetes patients age 65+ in Medicare Part D and the VA, 2008.

	Oral Hypoglycemics		Long-acting Insulin[a]		Statin		ACEI/ARB	
	Medicare	**VA**	**Medicare**	**VA**	**Medicare**	**VA**	**Medicare**	**VA**
Total number of 30-day Prescriptions (or units)[a]	10,385,905[b]	5,098,778	2,875,278,349[a,b]	1,978,168,710[a]	6,095,802[b]	3,880,351	7,274,793[b]	3,907,993
Mean prescriptions per patient per year[a]	13.3	13.5	12,400[a]	17,393[a]	9.1	10.1	9.9	10.5
Percent of prescriptions for brand[a]	23.3	7.4	60.6[a]	16.8[a]	45.5	12.3	37.8	20.0
Mean cost ($) per 30-day supply for brand drug[a,c]	156.2	79.6	0.12[a]	0.03[a]	100.6	32.5	74.3	16.2
Mean cost ($) per 30-day supply for generic drug[a,c]	13.6	9.6	0.06[a]	0.01[a]	20.7	8.5	17.7	9.1

Notes

Medicare refers to patients enrolled in fee-for-service Parts A, B and stand-alone Part D.

[a]Values for long-acting insulin are based on number of units dispensed rather than number of prescriptions. Mean costs for long-acting insulin are costs per unit for analogue (‘brand’) and non-analogue (‘generic’) insulins.

[b]The number of prescriptions (insulin units) dispensed are for a 40% random sample Medicare denominator, and for our spending calculations we multiplied by 2.5 to represent potential savings if applied to the entire fee-for-service Medicare Part D program.

[c]Because VA costs typically include only ingredient costs and Medicare costs include total reimbursements to the pharmacy, (i.e., plan payment, consumer copayment and dispensing fee), we added patient copayments and an average dispensing fee to the cost of each VA prescription. Abbreviations: Statins, HMG-CoA reductase inhibitors; ACE/ARB, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker.

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