

VA Pharmacy Users: How They Differ From Other Veterans

Sherrie L. Aspinall, PharmD, MSc; Jessica S. Banthin, PhD; Chester B. Good, MD, MPH; G. Edward Miller, PhD; and Francesca E. Cunningham, PharmD

The Department of Veterans Affairs (VA) provides a comprehensive prescription drug program designed to address the medication needs of veterans, while maintaining low costs.^{1,2} Most veterans pay \$8 for a 30-day supply of each medication they receive, with an annual maximum out-of-pocket expense of \$960. However, veterans do not pay for medications associated with a condition that is connected to their military service, and veterans whose incomes are below a certain threshold pay nothing at all. An ongoing challenge for the VA is to provide high levels of service within a fixed budget, rising drug costs, and increasing use of prescription medications. The VA established a pharmacy benefits management (PBM) group in 1995 to manage the drug formulary for the entire VA system,¹ which served over 4.4 million veterans in fiscal year 2007 and provided more than 122 million prescriptions. When updating the formulary, staff from the VA PBM consider the available evidence on the efficacy and safety of the drugs, their relevance to the VA population, and their place in therapy relative to currently available medications, as well as cost.²

Previous studies comparing the characteristics of veterans who use VA medical centers for healthcare services with the characteristics of veterans who obtain their care elsewhere have found that, in general, veterans who use the VA have lower incomes and education levels and report poorer health.^{3,4} In addition, among veterans younger than age 65 years, those who were uninsured were more likely to use the VA for healthcare.^{3,5} However, these studies did not specifically address the use of VA pharmacy services, and they did not evaluate differences while controlling for age, aside from insurance status.

As prescription drug use and expenditures have risen dramatically over time,⁶ it is important to focus on veterans who may come to the VA primarily to take advantage of the pharmacy benefit.⁵ In addition, knowledge about the users of VA pharmacy services is valuable when comparing the VA national drug plan with other models of prescription drug coverage, such as Medicare Part D, because patient characteristics have an effect on the types of medications included in the plans and the level of use of those medications. The VA serves a disproportionately elderly population who are more likely than younger veterans to be heavy users of prescription

medications; therefore, it is necessary to adjust for age when comparing VA users with nonusers. In addition, comparing differences in pharmacy use by age could provide insight into future

Objective: To compare users and nonusers of Veterans Affairs (VA) pharmacy services by age group.

Study Design: Cross-sectional.

Methods: We used data on sociodemographics, health status, and medical conditions from the Medical Expenditure Panel Survey (MEPS) to compare users and nonusers of VA pharmacies for medications. Data were pooled for 2003-2005 to ensure adequate sample sizes. Student *t* tests were used to compare the means for each variable, and all analyses were adjusted for the complex sample design of the MEPS.

Results: Among both nonelderly (18-64 years) and elderly (≥65 years) veterans, a higher proportion who used VA pharmacy services versus those who did not use VA pharmacy services (1) were black (nonelderly: 17.7% vs 7.4%, *P* < .001; elderly: 9.4% vs 4.7%, *P* < .001); (2) had no alternative insurance (nonelderly: 27.2% vs 4.8%, *P* < .001; elderly: 36.3% vs 19.9%, *P* < .001); (3) had lower incomes (nonelderly: 32.4% vs 11.5%, *P* < .001; elderly: 32.4% vs 25.4%, *P* = .01); (4) had less than a high school education (nonelderly: 13.0% vs 6.5%, *P* < .001; elderly: 27.5% vs 17.6%, *P* < .001); (5) were disabled; and (6) reported poorer health. A higher percentage of nonelderly users reported a mental health condition (31.6% vs 19.4%, *P* < .001).

Conclusions: Veterans who use VA pharmacy services appear to be more ill than those who do not use VA pharmacy services. In addition, the VA appears to be a safety net for uninsured veterans who have mental health problems.

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Take-Away Points

Knowledge about the users of Veterans Affairs (VA) pharmacy services is valuable when comparing the VA national drug plan with other models of prescription drug coverage because patient characteristics influence the types of medications included in the plans, as well as their level of use.

- Veterans who use VA pharmacy services appear to be more ill than their counterparts who do not use the VA pharmacy benefit.
- Mental health problems are especially prevalent among nonelderly users, and services for these illnesses may need to be expanded in the future.

least 1 VA pharmacy claim and used the VA for at least 1 inpatient, outpatient, office-based, home health, or dental service. Similarly, we defined a control group of veterans who did not use the VA pharmacy. These “nonusers” consisted of veterans who had at least 1 non-VA pharmacy claim and used at least 1 healthcare service from the list

utilization when, for example, increasing numbers of younger veterans may turn to the VA for healthcare and pharmacy benefits on their return from the wars in Iraq and Afghanistan.

above from a non-VA provider. The treatment and control groups were defined in this manner because it increased the accuracy of the sources of payment for the claims. The MEPS data showed that about 3.3% of veterans had a pharmacy claim, but no other reported use of health services. This may have occurred, in some cases, because an office visit or other physician contact took place prior to data collection. By definition, these individuals were excluded from our analysis.

METHODS

Source of Data

We used data from the Medical Expenditure Panel Survey (MEPS) to compare veterans who were users of VA pharmacy services with those who were nonusers; comparisons were made separately by age group. MEPS data are especially useful for describing these populations because the survey ascertains veteran status and includes detailed information on sociodemographic variables, health status, and medical conditions. The MEPS also measures all healthcare service utilization inside and outside of the VA.

The MEPS, sponsored by the Agency for Healthcare Research and Quality, is an ongoing survey that collects nationally representative data on healthcare utilization, expenditures, sources of payment, insurance coverage, and health status for the civilian, noninstitutionalized population. Additional demographic and socioeconomic data are collected for all individuals in sampled households through computer-assisted personal interviews. Each year approximately 13,000 households and 35,000 individuals are surveyed. The MEPS verifies household reports of payments for medical care services through provider follow-back surveys. To verify the sources of payment for prescribed medicines, respondents are asked for permission to contact their pharmacy, including VA pharmacies. For this analysis, we pooled data from the MEPS for 2003 through 2005 to ensure adequate sample sizes for comparing VA pharmacy users with nonusers by age group. The larger samples reduced the standard errors surrounding the estimates, and smaller standard errors thus allowed us to discuss more statistically significant differences between the groups. At the time, 2005 was the most recent year with complete data.

Population

We defined a treatment group consisting of users of VA pharmacy services. “Users” included veterans who had at

We defined veterans between the ages of 18 and 64 years as nonelderly and those over the age of 65 years as elderly. For veterans who used VA pharmacy services, the sample sizes were 533 and 638 for the nonelderly and elderly groups, respectively. The sample sizes for veterans who did not use VA pharmacy services were 1555 and 1428 for the nonelderly and elderly groups, respectively. Our results were weighted to be nationally representative of the US civilian, noninstitutionalized population of these age groups.⁷

Analysis

Student *t* tests were used to compare the means for each variable in the 2 groups of veterans. All analyses were adjusted for the complex sample design of the MEPS using SUDAAN version 9.0.1 (Research Triangle Institute, Research Triangle Park, NC).

RESULTS

Sociodemographics

Using our definition of the treatment group, we found that about 4.2 million veterans used the VA pharmacy on average each year in 2003 through 2005. This estimate matched closely the VA administrative data. This treatment group included 1.8 million veterans younger than age 65 years and 2.4 million veterans age ≥ 65 years. Our control group of veterans who did not use the VA pharmacy included an average annual total of 11.6 million veterans, of whom 6.1 million were under age 65 years and 5.5 million were age ≥ 65 years. **Table 1** displays the sociodemographic characteristics of nonelderly users versus nonusers of VA pharmacy services. **Table 2** presents the same data for elderly veterans.

VA Pharmacy Users

Table 1. Sociodemographic Characteristics of Nonelderly Users Versus Nonusers of VA Pharmacy Services, 2003-2005

Characteristic	Percentage		P
	VA Pharmacy Users (N = 1,830,032)	VA Pharmacy Nonusers (N = 6,099,562)	
Mean age, y	53.7	51.4	<.001
Sex			
Male	92.9	91.1	.31
Female	7.1	8.9	.31
Race/ethnicity^a			
White	72.4	85.2	<.001
Black	17.7	7.4	<.001
Asian	1.0	0.8	.66
Hispanic	3.9	4.6	.35
Other	5.0	1.9	.17
Married	53.6	76.0	<.001
Education^b			
<High school	13.0	6.5	<.001
High school	32.0	31.9	.98
Any college	54.6	61.4	.04
Employment^{b,c}			
Full-time	44.0	71.4	<.001
Part-time	6.4	8.4	.19
Other	47.7	19.8	<.001
Income^d			
Low or less	32.4	11.5	<.001
Middle	27.0	28.5	.61
High	40.6	60.0	<.001
Insurance			
Private	55.8	91.4	<.001
Public	16.9	3.8	<.001
Uninsured	27.2	4.8	<.001
Metropolitan statistical area^e	77.9	81.8	.11

^aRace/ethnicity is defined as white/non-Hispanic, black/non-Hispanic, Asian, Hispanic, and other. Other includes American Indian, Alaskan Native, Native Hawaiian, Pacific Islander, and persons who reported multiple race.
^bTotal is not 100% because of missing values.
^cEmployment category of "other" includes those who reported being retired, disabled or too ill to work, unemployed, or not looking for work.
^dIncome is defined as "low or less" if the total family income is <200% of the federal poverty level (FPL), "middle" if it is 200% to <400% of the FPL, and "high" if it is ≥400% of the FPL.
^eMetropolitan statistical area contains a core urban area with a population of ≥50,000 and adjacent counties.

There were many differences between users and nonusers of VA pharmacy services in the nonelderly veteran population. Users of VA pharmacy services were more likely than nonusers to be black (17.7% vs 7.4%, $P < .001$), less likely to be married (53.6% vs 76.0%, $P < .001$), and twice as likely to have less than a high school education (13.0% vs 6.5%, $P < .001$). In addition, users were much

more likely than nonusers to be unemployed or out of the labor force (47.7% vs 19.8%, $P < .001$) and living in a poor or low-income family (32.4% vs 11.5%, $P < .001$). Fewer users than nonusers lived in high-income families (40.6% vs 60.0%, $P < .001$).

Nonelderly users also differed significantly from nonusers in terms of insurance status. More than one-quarter of

■ **Table 2.** Sociodemographic Characteristics of Elderly Users Versus Nonusers of VA Pharmacy Services, 2003-2005

Characteristic	Percentage		P
	VA Pharmacy Users (N = 2,357,204)	VA Pharmacy Nonusers (N = 5,511,475)	
Mean age, y	75.2	75.0	.66
Sex			
Male	98.7	96.5	<.001
Female	1.3	3.5	<.001
Race/ethnicity^a			
White	86.2	90.2	.03
Black	9.4	4.7	<.001
Asian	0.2	1.5	<.001
Hispanic	2.2	2.6	.57
Other	1.9	1.0	.15
Married	69.6	72.4	.26
Education^b			
<High school	27.5	17.6	<.001
High school	25.8	33.2	.01
Any college	45.7	48.9	.31
Employment^{b,c}			
Full-time	6.7	7.7	.54
Part-time	7.8	6.5	.39
Other	83.4	82.6	.73
Income^d			
Low or less	32.4	25.4	.01
Middle	34.3	30.7	.21
High	33.3	43.9	<.001
Insurance			
Private/Medicare	57.5	76.0	<.001
Public/Medicare	6.2	4.1	.08
Medicare only	36.3	19.9	<.001
Metropolitan statistical area^e	73.7	76.6	.28

^aRace/ethnicity is defined as white/non-Hispanic, black/non-Hispanic, Asian, Hispanic, and other. Other includes American Indian, Alaskan Native, Native Hawaiian, Pacific Islander, and persons who reported multiple race.

^bTotal is not 100% because of missing values.

^cEmployment category of "other" includes those who reported being retired, disabled or too ill to work, unemployed, or not looking for work.

^dIncome is defined as "low or less" if the total family income is <200% of the federal poverty level (FPL), "middle" if it is 200% to <400% of the FPL, and "high" if it is ≥400% of the FPL.

^eMetropolitan statistical area contains a core urban area with a population of ≥50,000 and adjacent counties.

nonelderly VA pharmacy users were uninsured compared with less than 5% of nonusers (27.2% vs 4.8%, $P < .001$). In addition, a much larger proportion of users had public coverage compared with nonusers (16.9% vs 3.8%, $P < .001$). As a result, while 91.4% of nonusers were covered by private insurance, the same was true for only 55.8% of users.

There were fewer differences between elderly users and nonusers of VA pharmacy services. As with the younger age

group, elderly users were more likely to be black (9.4% vs 4.7%, $P < .001$) and have less than a high school education (27.5% vs 17.6%, $P < .001$) compared with elderly nonusers. But there were no differences in marital or employment status. Income differences were similar but less pronounced, with more users living in poor or low-income families (32.4% vs 25.4%, $P = .01$) and fewer users living in high-income families (33.3% vs 43.9%, $P < .001$). In the elderly age group, 57.5% of

VA Pharmacy Users

Table 3. Health Status and Medical Conditions of Nonelderly Users Versus Nonusers of VA Pharmacy Services, 2003-2005

Characteristic	Percentage		P
	VA Pharmacy Users (N = 1,830,032)	VA Pharmacy Nonusers (N = 6,099,562)	
Health status^a			
Fair or poor	53.5	21.4	<.001
Good	27.8	40.5	<.001
Very good	12.4	28.7	<.001
Excellent	6.2	9.3	.16
Mental health status^a			
Fair or poor	32.1	10.2	<.001
Good	37.7	39.5	.53
Very good	16.5	30.5	<.001
Excellent	13.6	19.7	.02
ADL difficulties	8.2	1.2	<.001
IADL difficulties	12.3	2.8	<.001
Physical functioning limitations	42.6	18.4	<.001
Activity limitations	40.0	12.3	<.001
Cognitive limitations	19.1	4.8	<.001
Condition			
Hyperlipidemia	29.4	25.6	.24
Hypertension	46.3	33.0	<.001
Diabetes	24.0	11.6	<.001
CAD	6.6	3.8	.08
COPD	2.5	0.5	.05
GERD/PUD	20.1	15.4	.07
Depression and anxiety	20.2	14.6	.02
Depression	15.9	9.2	<.001
Psychoses	4.2	1.0	.02
Any mental disorder	31.6	19.4	<.001
Mean number of conditions^b			
ICD-9-CM codes	5.8	4.2	<.001
Clinical condition codes	5.6	4.1	<.001

ADL indicates activity of daily living; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease; IADL, instrumental ADL; ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; PUD, peptic ulcer disease.

^aTotal is not 100% due to missing values.

^bThe mean number of conditions is the average number of self-reported unique medical conditions converted to a 3-digit ICD-9-CM code. The ICD-9-CM codes then were grouped into broader, more clinically meaningful diagnostic groups (the clinical condition codes).

veterans who used VA pharmacy services had private insurance (in addition to Medicare) versus 76.0% of nonusers ($P < .001$), and 36.3% of users had Medicare only versus 19.9% of nonusers ($P < .001$).

Health Status and Medical Conditions

Table 3 and Table 4 present the health status and medical

conditions of users versus nonusers of VA pharmacy services in nonelderly and elderly veterans, respectively. Regardless of the age category, veterans who used VA pharmacy services reported poorer health status along many dimensions compared with veterans who did not use the VA pharmacy.

Among nonelderly veterans, users of the VA pharmacy were more than twice as likely to report fair or poor gen-

■ **Table 4.** Health Status and Medical Conditions of Elderly Users Versus Nonusers of VA Pharmacy Services, 2003-2005

Characteristic	Percentage		P
	VA Pharmacy Users (N = 2,357,204)	VA Pharmacy Nonusers (N = 5,511,475)	
Health status^a			
Fair or poor	48.9	33.0	<.001
Good	34.7	39.9	.05
Very good	11.6	19.5	<.001
Excellent	4.7	6.9	.14
Mental health status^a			
Fair or poor	22.0	16.2	.01
Good	46.9	43.9	.31
Very good	20.0	26.8	<.001
Excellent	11.0	12.5	.48
ADL difficulties	13.9	8.4	.01
IADL difficulties	21.1	13.8	<.001
Physical functioning limitations	50.0	37.6	<.001
Activity limitations	36.6	24.6	<.001
Cognitive limitations	20.8	12.5	<.001
Condition			
Hyperlipidemia	40.6	33.7	.05
Hypertension	56.8	52.6	.13
Diabetes	28.8	19.1	<.001
CAD	11.1	9.0	.29
COPD	2.2	1.4	.34
GERD/PUD	26.7	16.2	<.001
Depression and anxiety	10.0	9.6	.79
Depression	6.3	6.1	.91
Psychoses	2.8	2.0	.39
Any mental disorder	15.3	12.5	.20
Mean number of conditions^b			
ICD-9-CM codes	7.7	6.0	<.001
Clinical condition codes	7.5	5.9	<.001

ADL indicates activity of daily living; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease; IADL, instrumental ADL; ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; PUD, peptic ulcer disease.
^aTotal is not 100% due to missing values.
^bThe mean number of conditions is the average number of self-reported unique medical conditions converted to a 3-digit ICD-9-CM code. The ICD-9-CM codes then were grouped into broader, more clinically meaningful diagnostic groups (the clinical condition codes).

eral health status (53.5% vs 21.4%, $P < .001$) and more than 3 times as likely to report fair or poor mental health status (32.1% vs 10.2%, $P < .001$) as nonusers. Users also were more likely to report being disabled than nonusers. Specifically, 42.6% of users compared with 18.4% of nonusers reported physical limitations ($P < .001$). Even larger differences between VA pharmacy users and nonusers were found for activ-

ity limitations such as work, school, and housework (40.0% vs 12.3%, $P < .001$) and cognitive limitations (19.1% vs 4.8%, $P < .001$). Users were also more likely to report difficulties with activities of daily living (ADLs) and instrumental ADLs (IADLs).

Nonelderly VA pharmacy users were more likely than nonusers to report hypertension (46.3% vs 33.0%, $P < .001$)

and diabetes (24.0% vs 11.6%, $P < .001$). Mental conditions also were much more common among VA pharmacy users. About 31.6% of users reported having any mental disorder compared with 19.4% of nonusers ($P < .001$). Focusing solely on depression, 15.9% of users versus 9.2% of nonusers reported this condition ($P < .001$). Overall, nonelderly VA pharmacy users reported having more conditions as measured by *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* codes than nonusers (5.8 vs 4.2 conditions, $P < .001$).

There also were many differences between elderly users and nonusers of VA pharmacies in terms of health status and medical conditions, but these differences were less dramatic. Nearly half of users reported fair or poor health status compared with one-third of nonusers (48.9% vs 33.0%, $P < .001$). A greater proportion of VA pharmacy users also reported fair or poor mental health versus nonusers (22.0% vs 16.2%, $P = .01$), but the discrepancy was not as large as that reported for general health status. The difference between the 2 groups was more significant for limitations in physical functioning, with 50.0% of elderly users reporting that they were disabled versus 37.6% of nonusers ($P < .001$). Similar differences between users and nonusers were seen in activity limitations (36.6% vs 24.6%, $P < .001$) and cognitive limitations (20.8% vs 12.5%, $P < .001$). Similarly, elderly users of VA pharmacy services were more likely to report difficulties with ADLs and IADLs than nonusers.

With regard to medical conditions, elderly users of VA pharmacy services were more likely to report having diabetes (28.8% vs 19.1%, $P < .001$) and gastroesophageal reflux disease/peptic ulcer disease (26.7% vs 16.2%, $P < .001$) than nonusers. In addition, users reported more medical conditions (mean of 7.7 vs 6.0 conditions, $P < .001$).

DISCUSSION

To our knowledge, this is the first national description of the characteristics of veterans who used VA pharmacy services versus those who obtained their medications outside of the VA. Similar to previous studies of veteran users and nonusers of VA healthcare, we found that a higher proportion of veterans who used VA pharmacy services were black, had no alternative insurance, had lower incomes and education levels, and reported poorer physical and mental health.^{3,4,8} Our study also found that these differences between users and nonusers held true for both nonelderly and elderly veterans, but they were much more pronounced among the nonelderly.

In addition, we found that both nonelderly and elderly users of VA pharmacy services reported more medical con-

ditions and were more disabled, as indicated by a higher percentage identifying physical, activity, and cognitive limitations and difficulties with ADLs and IADLs. Nonelderly users of VA pharmacy services reported the presence of mental health problems, hypertension, and diabetes more frequently. In contrast, only diabetes and gastroesophageal reflux disease/peptic ulcer disease were reported more frequently in elderly users versus nonusers of VA pharmacy services.

These differences in health problems have implications for the resources that are necessary within the VA health-care system. The VA has experience with treating mental health problems, but these services may need to be expanded as younger veterans return from Iraq and Afghanistan.^{9,10} A large proportion (27.2%) of nonelderly veterans who use the VA have no other insurance, and 31.6% of them report a mental disorder. Taken together, these findings suggest the VA may be a safety net for nonelderly veterans with mental health conditions. Other studies have found that the likelihood of care for mental health problems is lowest among the uninsured.^{11,12}

The VA also may have been a safety net for elderly veterans without private insurance prior to the implementation of the Medicare Prescription Drug Act because of its coverage of prescription medications.⁵ As stated previously, our data indicate that elderly veterans who use VA pharmacy services report being treated for a greater number of medical conditions. Therefore, they may be taking more medications. Interestingly, a recent study found that Medicare Part D could reduce expenditures for some veterans living near the poverty level who have incomes above the threshold for a copayment waiver through the VA.¹³ Our study provides important baseline data that are needed to assess the impact of Medicare Part D on the future use of VA pharmacy services. In addition, knowledge about the users of VA pharmacy services is important when comparing the VA national drug plan with other models of prescription drug coverage, such as Medicare Part D, because patient characteristics, including health status, medical conditions, and disability status, influence the types of medications included in the plans and their degree of use.

Our conclusions are strengthened by the nationally representative and comprehensive data used to conduct our analyses. Unlike administrative data sets, the MEPS includes veterans who have never used the VA pharmacy and covers all sources of potential third-party payers. There are nonetheless some limitations to the MEPS data. First, medical conditions are reported by household respondents and are mainly collected in connection with healthcare use (eg, respondents are asked about the reason for an office visit or purchase of a medication). This situation could lead to underreporting,

especially with regard to mental health conditions, although there is no apparent reason why any systematic bias should result with respect to veterans who use and do not use VA pharmacy services. Second, although we combined data from 2003 through 2005, the unweighted number of veterans in the MEPS was small and limited the statistical power for some other comparisons (eg, we could not examine the prevalence of less common medical conditions).

In conclusion, our results indicate that veterans who use VA pharmacy services appear to be more ill than their counterparts who do not use the VA pharmacy benefit. Mental health problems are especially prevalent among nonelderly users, and services for these illnesses may need to be expanded in the future. Our description of the characteristics of veterans who use VA pharmacy services facilitates understanding of their future needs and makes possible more accurate comparisons of the VA model with other models of healthcare, including Medicare, in terms of attributes such as cost and formulary structure.

Author Affiliations: From the VA Center for Medication Safety (SLA, CBG, FEC), Hines, IL; the Center for Health Equity Research and Promotion (SLA, CBG), VA Pittsburgh Healthcare System, Pittsburgh, PA; the School of Pharmacy (SLA, CBG) and the School of Medicine (CBG), University of Pittsburgh, PA; the Center for Financing, Access and Cost Trends (JSB, GEM), Agency for Healthcare Research and Quality, Washington, DC.

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Address correspondence to: Sherrie L. Aspinall, PharmD, MSc, VA Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, 7180 Highland Dr, Pittsburgh, PA 15206. E-mail: sherrie.aspinall@va.gov.

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