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## Research and Methods Briefs

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# Health Care Expenditures for Urban and Rural Veterans in Veterans Health Administration Care

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**Objective.** To compare Veterans Health Administration (VA) patients, non-VA-using veterans, and nonveterans, separated by urban/rural residence and age group, on their use of major categories of medical care and payment sources.

**Data Source.** Expenditures for health care—using men in Medical Expenditure Panel Surveys from 1996 through 2004.

**Study Design.** Retrospective, cross-sectional analysis.

**Data Collection/Extraction Methods.** Controlling for demographics, health status, and insurance, we compared groups on population-weighted expenditures for inpatient, hospital-based outpatient, office-based, pharmacy, and other care, by major payers (self/family, private insurance, Medicare, other sources, and VA).

**Results.** VA users received most of their health care outside of the VA system, paid through private insurance or Medicare; self-payments were substantial. VA users under 65 reported worse health if they were rural residents but also lower expenditures overall and less care through private insurance.

**Conclusions.** VA health care users get most of their medical care from non-VA providers. Working-age VA users have less insurance coverage and rely more on VA care if they live in rural areas.

**Key Words.** Veterans, rural, expenditures

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The Veterans Health Administration (VA) provides much of its medical care, particularly specialized and high-technology treatment, in urban settings, which may be difficult for rural veterans to access. VA enrollees also obtain much of their medical treatment in the private sector, particularly if they have Medicare or other insurance and VA care is far away (Kazis et al. 2001; Weeks et al. 2004, 2005; Hynes et al. 2007). Rural veterans have lower incomes and less insurance and therefore many have less access to both VA and non-VA care; they report poorer health, which suggests that their medical needs may be less adequately met (West and Weeks 2006).

To assess whether urban–rural differences in access to medical care are similar for veterans who use the VA at all compared with veterans who do not use the VA, or nonveterans, and whether these access differences may vary with age, we analyzed expenditures data from 9 years of the Medical Expenditures Panel Survey (MEPS; <http://www.meps.ahrq.gov>), a continuous national health survey of the general U.S. population. We compared groups with respect to their medical expenditures overall and within major categories of care, as well as with regard to the major payers for their care. Limiting our sample to men (because very few veterans were women), we subdivided these groups into residents of metropolitan statistical areas (MSA) (urban) versus those living outside of MSAs (rural), and into men 65 years or older (and therefore eligible for Medicare) versus those younger than 65 years (who would obtain Medicare only through disability). Our statistical procedures yielded population-weighted estimates and controlled for survey design characteristics and demographic, health status, and insurance coverage covariates. We anticipated that expenditures for the non-VA care that VA enrollees receive would be substantial relative to their VA care, possibly higher than for other health care–using veterans or nonveterans, and that the extent of their reliance on non-VA care would differ depending on age group and urban–rural residence.

## METHOD

MEPS is a national survey of noninstitutionalized civilians, which the Agency for Healthcare Research and Quality has conducted since 1996, with new probability samples recruited every year. Using a continuous overlapping panel design, MEPS follows each participant for 2 years, conducting multiple interviews of participants and their providers (because respondents often may not know what payments providers actually receive) to determine medical services obtained, expenditures, sources of payment, insurance coverage, in-

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come, demographics, and perceptions of health status. Some data are imputed (Machlin and Dougherty, 2004) to replace missing data with estimates from similar cases, provide estimates for care delivered under capitated reimbursement arrangements, or adjust insurance payments because respondents were unaware the insurer's payment was discounted. Because event-level expenditures have not been available for VA utilization, they are imputed based on similar events paid for on a fee-for-service basis. Absolute expenditures, therefore, may have some questionable generalizability, but relative expenditures, or an individual's "reliance," on VA versus other care should be quite robust. A recent RAND report (Bigelow et al. 2005) found that most MEPS expenditure estimates require no adjustment and its utilization estimates "agree quite well" with estimates from other databases. MEPS data are summarized in annual Full Year data files; we analyzed 9 years of data, from 1996 through 2004.

MEPS distinguishes veterans of military service from nonveterans; because MEPS does not identify VA health care enrollees specifically, we defined each year's VA users as those veterans for whom annual VA expenditures were  $> \$0$ . VA users are more likely than other veterans to have service-connected disabilities, but MEPS does not include this information. Because very few female veterans were sampled, and no veteran was younger than 19 years, we limited our analyses to males 19 years old or older. Comparisons of expenditures included only men who had used health care (total medical expenditures  $> \$0$ ) during the year. We separated men into groups based on age (19–64 years old versus 65 years or older), residence (urban versus rural), and veteran–VA user status (nonveteran, veteran not receiving any VA care, or veteran who received some care from the VA).

Each year MEPS assigns each respondent a weight to estimate population values corrected for variations in sampling coverage. We combined the Full Year files for 1996 through 2004 with a person weight file for all subjects in that time (all files are public and downloadable from the MEPS website). MEPS uses a complex stratified sampling design, with variable numbers of primary sampling units across strata, to ensure proper variance estimates; we used *SAS Surveyfreq*, *Surveymeans*, and *Surveyreg* procedures to calculate weighted means and percentages, standard errors, and regression coefficients, controlling for several covariates. Because expenditures data may be skewed, we tested, within each age group, for the effects of residence, veteran–VA user status, and their interaction, by regressing log-transformed expenditures onto these factors. Although multiple comparisons increase the chances of Type I errors, the findings we discuss below are consistently significant at  $p < .001$  or better.

## RESULTS

Table 1 shows sample sizes and summary statistics for selected demographics, health status measures, and medical insurance coverage of various types (or no coverage), as well as percentages of men who used any health care, and for those who did, percentages who used different categories of care. In either age group, rural men had lower incomes and less education, and were less likely to be nonwhite or Hispanic but more likely to be married currently, than urban men. Whether they used the VA or not, veterans were less likely than nonveterans to be Hispanic, and more likely to have at least a high school education, though this difference was greater among older men. Veterans who did not use the VA were more likely than other men to be married and white and less likely to be poor. Among men younger than 65 years, veterans tended to be older than nonveterans.

Veterans who used VA care were more likely than other veterans or nonveterans to rate their physical or mental health unfavorably and to have multiple comorbidities. Regardless of age group or veteran–VA user status, rural men averaged roughly as many comorbidities as urban men, but when urban–rural differences in health ratings appeared, rural residents were consistently more likely to rate their physical or mental health poorly. Rural VA users younger than 65 years were considerably more likely than other men their age to report fair or poor physical health. Among men older than 65 years, however, VA users were no more likely than nonveterans to rate their health unfavorably, though they did have more comorbidities. In either age group, veterans who did not use the VA were less likely than other men to rate their health unfavorably, though their comorbidity rates were comparable to those of nonveterans.

Nearly all older men used some health care, as did about three in four younger nonveterans or veterans not in VA care. Veterans in VA care were more likely than other health care consumers to use each major category of service, but less likely to have commercial health insurance, especially if they were rural residents. Most men 65 years or older had Medicare, but few elderly veterans had Medicaid, less often than nonveterans. Among men younger than 65 years, VA users were most likely to have Medicare or Medicaid (due to disability) or to be uninsured; nearly one in five rural VA users was uninsured throughout the year. Urban–rural differences in utilization were small and inconsistent, regardless of service category or age group. Consequently, the VA provided care to veterans who were sicker and less financially secure than other health care–using men, while veterans not in VA care appear to have

Table 1: Sample Sizes, Demographics, Health Status, Insurance Coverage, and Use of Any Health Care for Men in MEPS Samples in Any of Nine Years, 1996–2004

Age Group	Men between 19 and 64 Years Old				Men 65 Years or Older					
	Nonveterans		Veterans Not in VA Care		Veterans Using Any VA Care		Veterans Not in VA Care		Veterans Using Any VA Care	
Residence	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
<i>Sample size</i>										
Total unique individuals	25,691	6,534	4,025	1,200	1,847	623	2,087	767	1,906	567
Average annual sample (SD)	5,037 (1,113)	1,267 (251)	715 (150)	211 (52)	266 (80)	92 (29)	396 (93)	146 (34)	311 (86)	88 (31)
<i>Demographics percentages (SE)</i>										
Family income <125% of federal poverty level	9.8 (0.3)	14.2 (0.9)	4.6 (0.3)	6.3 (0.8)	12.4 (0.9)	17.5 (2.0)	14.8 (0.8)	19.8 (1.5)	6.9 (0.5)	8.3 (1.0)
Married currently	57.7 (0.5)	62.5 (1.1)	74.6 (0.9)	79.3 (1.5)	67.2 (1.6)	68.2 (2.6)	71.3 (1.3)	71.4 (2.4)	77.2 (1.2)	83.9 (1.8)
High school education	86.0 (0.4)	79.0 (0.9)	94.1 (0.4)	88.8 (1.2)	89.5 (0.9)	80.4 (2.1)	60.5 (1.6)	46.3 (2.9)	79.3 (1.3)	70.8 (2.9)
Race other than white	45.7 (1.0)	40.7 (1.5)	37.2 (1.2)	31.7 (1.8)	49.3 (1.6)	41.5 (2.7)	49.0 (1.6)	43.2 (2.4)	31.5 (1.4)	26.0 (2.2)
Hispanic	11.8 (0.6)	4.9 (0.9)	4.7 (0.5)	2.0 (0.5)	5.4 (0.7)	1.6 (0.5)	11.0 (0.9)	4.4 (1.2)	3.3 (0.5)	0.9 (0.4)
<i>Means (SE)</i>										
Annual income in dollars	38,409 (440)	28,408 (639)	44,589 (723)	34,606 (956)	35,863 (836)	27,573 (1,325)	22,588 (632)	18,741 (734)	28,165 (796)	22,350 (903)
Age	39.0 (0.1)	40.0 (0.2)	49.2 (0.2)	49.5 (0.4)	51.0 (0.3)	51.8 (0.5)	74.0 (0.2)	74.3 (0.2)	73.2 (0.2)	73.0 (0.3)

continued

Table 1. Continued

Age Group	Men between 19 and 64 Years Old				Men 65 Years or Older							
	Veteran-VA User Status		Veterans Not in VA Care		Veterans Using Any VA Care		Veterans Not in VA Care		Veterans Using Any VA Care			
Residence	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural		
<i>Health status percentages (SE)</i>												
Self-rated physical health is fair/poor	8.6 (0.3)	12.6 (0.7)	6.5 (0.4)	9.2 (1.2)	20.7 (1.2)	30.4 (2.4)	24.2 (1.0)	31.6 (2.0)	15.1 (0.9)	18.0 (1.7)	26.6 (1.2)	31.0 (2.0)
Self-rated mental health is fair/poor	4.3 (0.2)	6.1 (0.4)	2.6 (0.3)	2.8 (0.5)	9.5 (0.7)	10.1 (1.5)	9.9 (0.8)	14.7 (1.8)	4.9 (0.5)	6.7 (1.5)	8.8 (0.7)	9.7 (1.4)
Had diagnoses in >2 clinical classification categories	29.1 (0.5)	32.6 (0.9)	34.5 (0.9)	36.6 (1.8)	52.8 (1.7)	54.1 (2.5)	62.0 (1.5)	68.7 (2.0)	59.4 (1.5)	60.3 (3.3)	78.0 (1.0)	75.6 (1.7)
<i>Means (SE)</i>												
# Clinical classification categories	3.7 (0.0)	4.0 (0.1)	4.0 (0.1)	4.2 (0.1)	5.6 (0.1)	5.8 (0.2)	6.4 (0.1)	6.7 (0.2)	6.0 (0.1)	5.9 (0.2)	7.7 (0.1)	7.5 (0.2)
<i>Insurance coverage percentages (SE)</i>												
Had private insurance	82.2 (0.5)	76.8 (1.1)	92.7 (0.5)	88.5 (0.9)	68.0 (1.5)	57.2 (2.4)	59.9 (1.5)	58.7 (2.1)	79.9 (1.1)	83.3 (1.7)	56.7 (1.3)	50.3 (2.4)
Had Medicare	2.8 (0.2)	4.7 (0.4)	1.3 (0.2)	2.1 (0.5)	8.4 (0.7)	12.2 (1.5)	98.4 (0.3)	99.5 (0.2)	98.5 (0.3)	99.8 (0.1)	99.3 (0.2)	100 (0.0)
Had Medicaid	5.9 (0.3)	7.8 (0.6)	1.8 (0.3)	2.6 (0.6)	8.2 (1.0)	9.0 (1.7)	14.5 (1.0)	13.8 (1.9)	3.1 (0.4)	3.1 (1.0)	4.7 (0.6)	4.2 (0.8)
Had other insurance (inc. Public, CHAMPUS, Tricare)	1.0 (0.1)	1.2 (0.2)	6.4 (0.5)	6.0 (0.9)	18.0 (1.6)	14.8 (1.9)	2.9 (0.5)	2.8 (0.6)	4.4 (0.5)	5.0 (0.9)	10.1 (0.9)	9.2 (1.3)
Uninsured all year	11.2	14.4	4.6	7.8	14.3	19.4	0.4	0.2	0.0	0.0	0.1	0.0

continued

Table 1. Continued

Age Group	Men between 19 and 64 Years Old						Men 65 Years or Older											
	Veteran-VA User Status			Veterans Not in VA Care			Veterans Using Any VA Care			Nonveterans			Veterans Not in VA Care			Veterans Using Any VA Care		
	Urban	Rural	(SE)	Urban	Rural	(SE)	Urban	Rural	(SE)	Urban	Rural	(SE)	Urban	Rural	(SE)	Urban	Rural	(SE)
Percent using any health care	73.2	75.4	(0.8)	78.8	77.7	(1.1)	100	100	(0.0)	93.3	94.3	(0.6)	92.9	93.0	(0.7)	100	100	(0.0)
Of men who used any health care, percentage (SE) who had	4.9	7.3	4.8	4.8	6.2	15.4	15.4	15.3	17.8	20.8	13.8	13.8	13.8	13.8	13.8	23.2	27.1	27.1
Any hospitalizations	(0.3)	(0.4)	(0.8)	(0.4)	(0.8)	(0.9)	(0.9)	(1.8)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)
Any OP department visits	(0.4)	(0.8)	(0.8)	(0.7)	(1.1)	(0.0)	(0.0)	(0.0)	(0.6)	(0.9)	(1.5)	(0.8)	(0.8)	(1.3)	(1.7)	(0.0)	(1.2)	(1.7)
Any ER visits	12.4	16.0	14.2	14.2	19.4	32.3	32.3	34.8	26.3	33.0	29.9	29.9	29.9	30.7	40.9	40.9	44.1	44.1
Any office-based visits	(0.3)	(0.7)	(0.6)	(0.6)	(1.3)	(1.1)	(1.1)	(2.3)	(1.1)	(2.2)	(1.3)	(1.3)	(1.3)	(2.4)	(1.3)	(1.3)	(2.3)	(2.3)
Any prescription medicines	13.9	17.6	10.7	10.7	12.1	20.7	20.7	20.2	16.1	18.0	11.1	11.1	13.0	11.1	21.1	21.1	21.7	21.7
	(0.3)	(0.6)	(0.6)	(0.5)	(0.9)	(0.9)	(0.9)	(1.5)	(0.8)	(1.3)	(0.8)	(0.8)	(0.7)	(1.5)	(1.1)	(1.1)	(1.6)	(1.6)
	75.2	77.2	79.1	79.1	80.3	89.9	89.9	90.5	92.3	92.4	92.1	92.1	92.1	90.2	96.4	96.4	95.8	95.8
	(0.3)	(0.6)	(0.6)	(0.6)	(1.2)	(0.7)	(0.7)	(1.3)	(0.6)	(0.9)	(0.7)	(0.7)	(0.7)	(1.3)	(0.4)	(0.4)	(0.7)	(0.7)
	67.5	71.7	70.5	70.5	69.3	89.7	89.7	90.4	91.4	92.3	86.8	86.8	86.8	84.2	98.1	98.1	98.1	98.1
	(0.4)	(0.7)	(0.8)	(0.8)	(1.6)	(0.8)	(0.8)	(1.2)	(0.7)	(1.3)	(0.8)	(0.8)	(0.8)	(2.1)	(0.3)	(0.3)	(0.5)	(0.5)

ER, emergency room; MEPS, Medical Expenditures Panel Survey; OP, outpatient.

had even better health and finances than nonveterans. Rural residents, particularly men younger than 65 years, were at a disadvantage socioeconomically, with respect to insurance coverage, and in reported health.

In analyzing health care expenditures, we controlled for the demographic, health status, and insurance coverage variables in Table 1 statistically. Most covariates were binary, except for age, annual income, and number of Clinical Classification Categories (comorbidities); we log-transformed the latter two to reduce skewness. Using data only for those men who had any medical care during the year, we calculated mean expenditures and performed regression analyses for each age group separately, assessing group and residence effects, and their interaction.

Table 2 shows mean adjusted annual medical expenditures (with standard errors) for men who used any health care, overall and broken down by each major component of care and payment source. Each care category or payment source average also is represented as a percentage of the average total expenditures for the column. Men enrolled in VA care cost substantially more overall than other men who used health care: VA users' averages were about \$1,200–2,900 higher, depending on age group and residence. Among men younger than 65 years, urban–rural differences in total expenditures were small for nonveterans and veterans not in VA care, but of veterans who used the VA for any care, urban men averaged about \$1,100 more in total annual expenditures than rural men. Among men 65 years or older, rural VA users had the highest average total expenditures, about \$250 more than for urban VA users. Regressions using log-transformed expenditures confirmed these differences, revealing significant main effects for veteran–VA user status ( $p < .0001$  for either younger or older men) and its interaction with urban–rural residence ( $p < .05$  for younger men;  $p < .01$  for older men; means in any two cells also can be compared by dividing their difference by the square root of the sum of their squared standard errors, and treating the ratio as a  $z$  score).

Within each care category and age group, average expenditures consistently were higher for VA enrollees than other men (all at  $p < .0001$  or  $p < .001$ ), but differences varied considerably in magnitude: Among men younger than 65 years, average expenditures in most categories were nearly twice as high for VA users as other men, but their prescription expenditures averaged only slightly higher. Urban VA users averaged the highest expenditures in any category, particularly for inpatient care, while rural VA users relied less on inpatient care and more on other care categories. Among men 65 years or older, however, VA users had higher average expenditures, but they differed less sharply from other men, regardless of care category. For



Table 2: Average (with SE) Annual Population-Weighted Medical Expenditures (Adjusted for Demographic, Health Status, and Insurance Coverage Covariates, with SE Accounting for Survey Design) for Men Who Used Any Health Care during a Survey Year

Age Group	Men between 19 and 64 Years Old						Men 65 Years or Older							
	Nonveterans			Veterans in VA Care			Nonveterans			Veterans Not in VA Care				
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural		
<i>Veteran-VA User Status</i>														
<i>Residence</i>														
Total medical expenditures	2,804 (105)	2,795 (138)	2,209 (99)	2,450 (303)	5,101 (331)	4,005 (483)	6,619 (249)	6,622 (489)	6,732 (270)	6,934 (863)	8,195 (346)	8,441 (492)		
<i>Major care components</i>														
Inpatient care	852 (94)	793 (72)	571 (71)	636 (220)	1,624 (249)	921 (246)	2,596 (187)	2,405 (361)	2,682 (218)	3,048 (516)	3,070 (246)	3,573 (411)		
	30%	28%	26%	26%	32%	23%	39%	36%	40%	44%	37%	42%		
Other hospital-based care (outpatient and emergency room)	370 (11)	449 (30)	325 (25)	399 (47)	781 (66)	744 (152)	530 (34)	746 (98)	706 (59)	495 (52)	944 (114)	815 (79)		
	13%	16%	15%	16%	15%	19%	8%	11%	11%	7%	12%	10%		
Office-based care	528 (10)	473 (24)	443 (19)	520 (53)	998 (68)	824 (105)	1,108 (48)	984 (90)	1,067 (37)	1,249 (169)	1,398 (69)	1,231 (91)		
	19%	17%	20%	21%	20%	21%	17%	15%	16%	18%	17%	15%		
Other health care (optometry, dental, PT/ OT, prosthetics, etc.)	573 (16)	574 (40)	502 (26)	467 (41)	1,017 (109)	939 (184)	1,245 (84)	1,264 (146)	1,139 (46)	1,109 (215)	1,520 (124)	1,567 (129)		
	20%	21%	23%	19%	20%	23%	19%	19%	17%	16%	19%	19%		
Pharmacy services	480 (9)	507 (19)	369 (12)	428 (30)	681 (57)	578 (71)	1,140 (29)	1,222 (37)	1,138 (35)	1,034 (50)	1,263 (38)	1,255 (66)		
	17%	18%	17%	18%	13%	14%	17%	19%	17%	15%	15%	15%		

continued

Table 2. Continued

Age Group	Men between 19 and 64 Years Old						Men 65 Years or Older																				
	Veteran-VA User Status			Veterans Not in VA Care			Veterans in VA Care			Nonveterans			Veterans Not in VA Care			Veterans in VA Care											
	Urban	Rural	Urban	Urban	Rural	Urban	Urban	Rural	Urban	Urban	Rural	Urban	Urban	Rural	Urban	Urban	Rural	Urban	Rural								
<i>Major sources of payment</i>																											
Medicare	221 (17) 8%	245 (47) 9%	257 (30) 12%	181 (24) 7%	182 (66) 4%	450 (204) 11%	3,656 (188) 55%	3,797 (401) 57%	3,900 (213) 58%	3,591 (322) 52%	3,939 (234) 48%	4,486 (396) 53%	1,462 (81) 52%	1,512 (100) 54%	1,177 (89) 53%	1,533 (283) 63%	2,264 (249) 44%	1,482 (320) 37%	1,193 (93) 18%	1,069 (110) 16%	1,237 (87) 18%	1,611 (517) 23%	1,324 (114) 16%	985 (85) 12%			
Private insurance	508 (10) 18%	520 (16) 19%	406 (14) 18%	435 (27) 18%	523 (48) 10%	483 (71) 12%	1,216 (52) 18%	1,236 (57) 19%	889 (29) 13%	1,019 (119) 15%	1,006 (53) 12%	947 (61) 11%	570 (46) 20%	505 (49) 18%	394 (24) 18%	336 (50) 14%	855 (158) 17%	362 (151) 9%	532 (46) 8%	575 (83) 9%	502 (26) 7%	707 (95) 9%	722 (103) 9%	1,265 (123) 15%	1,341 (172) 16%		
Other sources (workers' comp, Medicaid, etc.)	—	—	—	—	1,295 (129) 25%	1,237 (196) 31%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VA	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Total expenditures and expenditures broken down by major categories of care and by major payers. Each percentage represents the cell average divided by the average of total medical expenditures for the column.

older men generally, roughly half of all expenditures went to inpatient and other hospital-based care, and the rest were evenly distributed among office-based care, other health care, and pharmacy services.

The biggest payer for men younger than 65 years was private insurance. Unexpectedly, urban VA users had the highest average private insurance expenditures (regression yielded an insignificant veteran-VA user by residence interaction but a significant urban-rural main effect,  $p < .001$ ). The next biggest payer for younger urban or rural VA users was the VA; nevertheless, the VA's average portion of overall expenditures was roughly 25-30 percent, thus VA users obtained 70-75 percent of their care outside the VA system. They also averaged paying as much out of pocket as other men under 65 years. Compared with urban VA users, rural users relied more heavily on the VA and Medicare and less on private insurance or other sources to pay for their health care.

For men 65 years or older, Medicare paid the most for care, and the average it paid for rural VA users was more than \$500 higher than for other men (regression yielded an insignificant interaction but a significant urban-rural main effect,  $p < .01$ ). Private insurance and out of pocket payments also were substantial, combining to account for more than 25 percent of average total expenditures. Older VA users got only about one-sixth of their medical care from the VA, so that the proportions of their care paid by Medicare, private insurance, and self/family were only slightly lower than for other men.

In summary, average medical expenditures were higher for older men, VA users, and rural men, but among VA users younger than 65 years, expenditures for rural veterans were substantially lower than for urban users. Urban-rural differences varied considerably across care categories. Medicare paid most for, and private insurance and self/family contributed substantially to, the medical care of older men, including VA users. Private insurance paid most for the care of younger men, including VA users, although younger VA users living rurally received substantially less care through private insurance than urban users. Average VA expenditures accounted for less than one-quarter of VA users' average medical expenses overall.

VA's portion of its users' health care expenditures might appear low because costs are averaged across all users, including those who used VA care minimally, such as for pharmacy services only. Roughly half of the VA users in MEPS used at least \$1,000 in VA care, so we compared them with those who used less; mean adjusted expenditures (with standard errors) are listed in Table 3. Even the higher users of VA care used non-VA care extensively: Among those younger than 65, higher VA users had total expenditures averaging two to three times those of lower users, and roughly one-third of their

Table 3: Average (with SE) Annual Population-Weighted and Adjusted Medical Expenditures for Men Who Used Any VA Health Care, Comparing Those Who Used <\$1,000 of VA Care in a Year with Those Who Used \$1,000 of VA Care or More

Age Group	19 to 64 Years Old				65 Years or Older			
	Used < \$1,000 of VA Care per Year		Used ≥ \$1,000 of VA Care per Year		Used < \$1,000 of VA Care per Year		Used ≥ \$1,000 of VA Care per Year	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
<i>Veterans in VA Care Who</i>								
<i>Residence</i>								
Person-year combinations	1,823	621	573	208	1,880	716	638	308
Total medical expenditures	3,824 (323)	2,861 (478)	9,676 (904)	7,890 (1,371)	7,412 (332)	7,512 (503)	10,743 (933)	10,823 (1,084)
<i>Major care components</i>								
Inpatient care	1,225 (264)	494 (214)	3,055 (719)	2,370 (812)	3,071 (272)	3,154 (408)	3,067 (462)	4,647 (944)
	32%	17%	32%	30%	41%	42%	29%	43%
Other hospital-based care (outpatient and emergency room)	586 (66)	569 (140)	1,480 (174)	1,337 (499)	796 (79)	821 (87)	1,427 (385)	800 (146)
	15%	20%	15%	17%	11%	11%	13%	7%
Office-based care	770 (64)	635 (93)	1,813 (179)	1,465 (231)	1,255 (69)	1,154 (89)	1,864 (154)	1,428 (209)
	20%	22%	19%	19%	17%	15%	17%	13%
Other health care (optometry, dental, PT/OT, prosthetics, etc.)	711 (70)	778 (201)	2,112 (395)	1,487 (499)	1,224 (95)	1,404 (131)	2,482 (420)	1,986 (282)
Pharmacy services	19%	27%	22%	19%	17%	19%	23%	18%
	532 (56)	385 (48)	1,215 (125)	1,232 (241)	1,066 (33)	979 (58)	1,903 (116)	1,962 (149)
	14%	13%	13%	16%	14%	13%	18%	18%

continued

Table 3. Continued

Age Group	19 to 64 Years Old				65 Years or Older			
	Used < \$1,000 of VA Care per Year		Used ≥ \$1,000 of VA Care per Year		Used < \$1,000 of VA Care per Year		Used ≥ \$1,000 of VA Care per Year	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
<i>Veterans in VA Care Who</i>								
<i>Residence</i>								
Major sources of payment								
Medicare	173 (57) 5%	504 (246) 18%	217 (187) 2%	268 (361) 3%	4,298 (267) 58%	4,776 (433) 64%	2,770 (406) 26%	3,743 (799) 35%
Private insurance	2,550 (287) 67%	1,724 (332) 60%	1,242 (470) 13%	659 (847) 8%	1,435 (129) 19%	1,046 (97) 14%	963 (227) 9%	829 (163) 8%
Self/family	544 (57) 14%	440 (76) 15%	448 (73) 5%	630 (144) 8%	938 (43) 13%	985 (64) 13%	1,229 (185) 11%	851 (119) 8%
Other sources (workers' comp, Medicaid, etc.)	554 (133) 14%	191 (101) 7%	1,932 (507) 20%	942 (519) 12%	556 (52) 8%	535 (59) 7%	1,198 (331) 11%	1,201 (319) 11%
VA	21 (13) 1%	9 (22) 0%	5,863 (580) 61%	5,406 (710) 69%	221 (14) 3%	211 (20) 3%	4,668 (482) 43%	4,235 (488) 39%

Note. Each percentage represents the cell average divided by the average of total medical expenditures for the column.

expenditures were for non-VA care. Whether they used much VA care, urban veterans still obtained substantially more care. Among men 65 years or older, who were heavier users of VA care, rural residents used more inpatient care while urban residents consumed more of the other categories of care; regardless of residence, they received, on average, only about two-fifths of their care from the VA but got another one-third through Medicare. In short, many veterans who use VA care extensively also use a great deal of non-VA care.

## DISCUSSION

Veterans who obtained at least some VA care averaged much higher medical expenditures than other health care-using men: adjusted annual expenditures for nonveterans averaged about \$2,800 for men younger than 65 years and \$6,600 for older men; they were roughly comparable for veterans not in VA care. For VA users, however, expenses averaged between \$1,200 and \$2,900 higher, depending on age and residence.

Rural VA users younger than 65 years reported poor health as often as older VA users, and more often than other working-age men, including urban VA users (though they had similar numbers of comorbidities). Their annual expenditures, however, averaged \$1,100 less than for urban VA users, who were more likely to have private insurance, and had the highest average insurance-paid expenditures, considerably higher than for any other group, young or old. Rural VA users were least likely to have insurance, and it paid no more for them than for other working-age men. Yet their self-payments for care were high, as high as for urban VA users, and substantially higher than for other men younger than 65 years.

Total expenditures for VA users 65 years or older averaged about \$250 higher for rural than urban veterans. Their average annual Medicare expenditures were about half their total expenditures, while payments by private insurance and self were also substantial. That so many older VA users had private insurance suggests that they may be about as likely as other men to rely on Medicare gap insurance.

VA users obtained only 25–30 percent of their total health care from the VA. Because less cost sharing for VA medical care is required of veterans with service-connected disabilities, we might expect to find many users who rely on the VA heavily and other care minimally. But even among the roughly half of VA users in MEPS with at least \$1,000 in VA care annually, the VA still paid only about half their total expenditures, on average; they relied on private

insurance, Medicare, and self/family to pay for the rest. From other health surveys, Woolhandler et al. (2005) have shown that many veterans not in VA care lack medical insurance and often forego needed care because of it; our findings suggest that many rural veterans who use VA care may similarly have less access to non-VA care due to costs and lower insurance coverage. Our analyses attempted to correct for illness burden, but the higher cost of VA users that remains raises the question of whether their access to both VA and non-VA care may increase overall utilization beyond medical need, promoting incompatible treatments and redundant care rather than better medical outcomes (Fisher and Welch 1999). Outcomes for VA patients, and cost containment, may benefit from more formal arrangements to coordinate care between VA and non-VA clinicians, in both urban and rural settings.

Within categories of care, average expenditures were highest for inpatient care, and inpatient costs for VA users were higher than for other veterans or nonveterans. Urban VA users had much higher inpatient expenditures than other men younger than 65 years, including rural VA users; on the other hand, among older men the rural VA users had the highest inpatient expenditures. Private insurance paid more for hospitalizations for younger VA users than the VA did, and for older VA users, Medicare paid much more. VA users also used more office-based or outpatient department physician care, which also was paid primarily by private insurance (younger men) or Medicare (older men). Although VA users' expenditures were higher in most categories of care, their medication expenses were not much different than for other men, perhaps due to VA's ability to negotiate volume discounts (the recent introduction of Medicare Part D may reduce demand for VA pharmacy services among veterans who do not otherwise use much VA care, but the VA's large prescription volumes will continue to enable it to negotiate substantial discounts, which most users will find attractive). In short, the VA did not pay most of VA users' medical expenditures, and users clearly rely more on payment sources other than the VA to meet their greater medical needs. Rural working-age VA users, however, appear to be at a disadvantage financially and in private insurance coverage.

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## SUPPORTING INFORMATION

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Appendix SA1: Author Matrix.

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