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## **TIME TRENDS IN EXPENDITURES FOR RURAL VETERANS' HEALTHCARE\***

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### ABSTRACT

We studied rural-urban differences in medical spending trends over eleven years for VA as well as non-VA care received by male veterans who used any VA services, and compared those trends to trends for other healthcare-using men. Using inflation-adjusted annual medical expenditures for non-veterans, VA users, and other veterans who participated in Medical Expenditure Panel Surveys from 1996 through 2006, we examined trends in spending on inpatient, hospital-based outpatient, office-based, pharmacy, and other care, by major payers (self/family, private insurance, Medicare, other sources, and VA), to assess changes in expenditures for the care of rural veterans, younger or older than 65 years, compared with other healthcare users. For all groups, spending for pharmacy and office-based care increased faster than inflation, while other care categories did not change consistently. VA spending also increased for these but not other services, and it grew sharply for working-age rural veterans, possibly reflecting improved access through community-based care.

Since the mid-1990s, the Veterans Health Administration (VA) has established hundreds of community-based outpatient clinics (CBOCs), serving both urban and rural areas, to provide primary care and mental health services closer to veterans' homes. Yet most of the VA's specialized and high-technology treatment is provided in centralized, usually urban, facilities. 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 (Hynes et al. 2007; Mooney et al. 2000; Weeks et al. 2005; West, Weeks, and Wallace 2008). Compared with urban veterans, rural veterans have lower incomes, less insurance coverage, and worse access to both VA

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and non-VA care; they also report poorer health, which suggests that their medical needs may be less adequately met (West and Weeks 2006).

In prior work (West and Weeks 2009), we analyzed expenditures from nine years of the Medical Expenditures Panel Survey (MEPS; [www.meps.ahrq.gov](http://www.meps.ahrq.gov)), a continuous national health survey of the general U.S. population. Limiting our sample to adult males who used any healthcare, we compared the use of major categories of care and of major payers by veterans who used any VA care, veterans who did not, and non-veterans. Within any major category, VA users obtained more healthcare than other veterans or non-veterans, and they received most of this care outside the VA system. Their non-VA care was paid primarily through private insurance or Medicare, and their out-of-pocket payments were substantial. Compared with their urban counterparts, VA users younger than 65 years old who were rural residents reported worse health, but average expenditures for their healthcare were lower, primarily because they received less care through private insurance.

In that study, however, we did not assess changes over time, and there are reasons to anticipate that important trends in healthcare spending might emerge. It is well known that healthcare costs have risen faster than general inflation in recent decades, but it is uncertain whether there have been similar increases in the overall costs of care for veterans with access to the VA, and unclear whether the treatment costs paid by the VA, private insurance, Medicare, or patients themselves have risen at similar rates. MEPS data span a time during which the VA healthcare system has been reorganized fundamentally, with the consolidation of much specialty care in urban locations, often at considerable distance from rural VA enrollees' homes, and the introduction of CBOCs, which have enhanced rural veterans' access to primary medical and mental health care. With an increasing emphasis on outpatient over inpatient care, we hypothesized that outpatient expenditures would have risen more rapidly, particularly among rural veterans. To assess such linear trends, we analyzed MEPS data spanning eleven years, 1996 through 2006.

## METHODS

MEPS is a national survey of the healthcare expenditures of non-institutionalized civilians, conducted by the Agency for Healthcare Research & Quality since 1996, with new probability samples recruited annually from each prior year's much larger National Health Interview Survey. Using a continuous overlapping panel design, MEPS follows each participant for two years, conducting

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multiple interviews of participants and their providers (since respondents often may not know what payments providers actually receive) to determine medical services obtained, expenditures for treatment, sources of payment, insurance coverage, income, 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, or adjust insurance payments because respondents were unaware the insurer's payment was discounted. Event-level expenditures for VA utilization are imputed based on similar events paid for on a fee-for-service basis. According to a RAND report (Bigelow et al. 2005), most MEPS expenditure and utilization estimates "agree quite well" with estimates from other databases. MEPS data are summarized in annual Full Year data files; for this study, we analyzed data for eleven years, 1996 through 2006.

MEPS distinguishes veterans of military service from non-veterans; but it does not identify VA healthcare enrollees specifically. For this study, we defined each year's VA users as those veterans for whom annual VA expenditures were greater than \$0. VA users are more likely than other veterans to have service-connected disabilities, but MEPS does not include this information. Because very few women veterans were sampled, and no veteran was younger than 19, we limited our analyses to males 19 years old or older; we included only men who had used any healthcare (total medical expenditures greater than \$0) during the year. They were split into groups based on age (19 to 64 years old versus 65 years or older), residence (urban versus rural, i.e., MSA versus non-MSA), and veteran-VA user status (non-veteran, veteran not receiving any VA care, or veteran who received some care from the VA). This study was approved by Dartmouth College's Committee for the Protection of Human Subjects (#16933).

Before statistical analysis, we converted MEPS expenditures for the years after 1996 to 1996 dollars by eliminating the effect of inflation as estimated by the national Consumer Price Index (U.S. Department of Labor 2009). We chose to correct for general inflation rather than the typically higher medical inflation index so that the general purchasing power of dollars would remain constant, since medical spending often reflects consumer choice. To ensure proper variance estimates in our analyses, we used the MEPS pooled variance file for 1996-2006 and SAS survey-appropriate statistical procedures to apply MEPS strata, primary sampling units, and person-weights to correct for variations in sampling coverage as well as repeated surveying of the same individual. Linear trends in annual expenditures were assessed using the SAS Surveyreg procedure, with constructed

variables to test the effect of year within each combination of veteran-VA user status, age group, and urban-rural residence. In our tables of results, findings that are significant at  $p < .01$  or better are indicated.

## RESULTS

Table 1 shows annual means and linear slopes across years (with standard errors) for CPI-corrected medical expenditures for all healthcare-using men in MEPS samples from 1996 through 2006. Displayed are total expenditures as well as expenditures categorized by major payer or type of care. Means or slopes in the same row that are significantly different from one another (at  $p < .01$  or better) have different superscripts; significant urban-rural differences are underlined; and slopes that differ significantly from zero are in bold-faced italics. Findings in Table 1 may be summarized as follows:

Average annual medical expenditures for healthcare (including payments by all sources) were much higher for veterans who used the VA at all than they were for other healthcare-using men,  $p < .0001$ , regardless of age group or urban-rural residence. Among men younger than 65, total expenditures for all healthcare that VA users received (from either VA or non-VA providers) averaged more than 2.5 times those for other men, for about \$4,000 more. Nevertheless, VA care accounted for only one-fourth of the total costs of the healthcare that younger VA users received. Among men 65 or older, annual expenditures for VA users were roughly \$3,000 higher than for other men, but VA care accounted for only one-seventh of their total medical expenditures, on average. Among most men younger than 65, total expenditures for healthcare were about \$400 more per year for rural residents than urban residents ( $p < .01$  for non-veterans), but among VA users, total healthcare expenditures averaged \$450 less for rural than urban veterans. Among men 65 or older, averages for urban and rural veterans were almost identical, and for non-veterans they were not significantly different due to large variance.

Between 1996 and 2006, CPI-corrected medical expenditures generally rose, sometimes significantly, among men other than VA users (elderly rural veterans not in VA care had a non-significant decline). For VA users, trends in total expenditures were inconsistent and non-significant, as were most trends in their use of VA care. For rural VA users younger than 65, however, there was a sharp increase in VA expenditures: during the first six years, younger rural VA users received less VA care than any other VA users, averaging about \$1,000 or less per year, but during the most recent four years they received more VA care than others, with annual inflation-corrected averages between \$2,500 and \$3,500 (data not in the tables).

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP.

AGE GROUP	UNIQUE NS					
	NON-VETERANS		VETERANS NOT IN VA		VETERANS WHO USED VA	
19 to 64:	Urban: 24,150	Rural: 6,083	Urban: 3,399	Rural: 953	Urban: 1,806	Rural: 606
65+:	Urban: 2,338	Rural: 813	Urban: 1,564	Rural: 404	Urban: 1,857	Rural: 715
MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures for All Care						
Men 19 to 64 Years Old:						
Urban. . . . .	<u>2235</u> <sup>a</sup>	2351 <sup>a</sup>	6603 <sup>b</sup>	<u>103.6</u>	91.6	-47.4
	(80)	(94)	(269)	(20.2)	(35.3)	(93.5)
Rural. . . . .	<u>2694</u> <sup>a</sup>	2694 <sup>a</sup>	6153 <sup>b</sup>	<u>185.7</u>	169.1	202.2
	(127)	(249)	(424)	(34.0)	(68.7)	(158.8)
Men 65 Years or Older:						
Urban. . . . .	5709 <sup>a</sup>	5103 <sup>a</sup>	8558 <sup>b</sup>	121.1	264.3	37.3
	(213)	(239)	(293)	(70.7)	(57.5)	(104.4)
Rural. . . . .	6620	5169 <sup>a</sup>	8573 <sup>b</sup>	250.0	-80.8	-17.4
	(405)	(795)	(458)	(172.0)	(232.9)	(125.4)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures Paid by the VA						
Men 19 to 64 Years Old:						
Urban. . . . .	—	—	1524	—	—	<u>76.7</u>
	(—)	(—)	(116)	(—)	(—)	(38.1)
Rural. . . . .	—	—	1533	—	—	<u>215.2</u>
	(—)	(—)	(161)	(—)	(—)	(43.6)
Men 65 Years or Older:						
Urban. . . . .	—	—	1257	—	—	35.5
	(—)	(—)	(101)	(—)	(—)	(26.9)
Rural. . . . .	—	—	1298	—	—	-24.9
	(—)	(—)	(133)	(—)	(—)	(39.4)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures Paid by Self or Family						
Men 19 to 64 Years Old:						
Urban. . . . .	<u>440</u> <sup>a</sup>	451 <sup>a</sup>	720 <sup>b</sup>	21.2	17.3	7.7
	(8)	(12)	(39)	(2.7)	(4.8)	(11.4)
Rural. . . . .	<u>487</u> <sup>a</sup>	478 <sup>a</sup>	766 <sup>b</sup>	27.6	18.9	25.0
	(14)	(26)	(59)	(3.7)	(7.6)	(17.9)
Men 65 Years or Older:						
Urban. . . . .	1057 <sup>a</sup>	767 <sup>b</sup>	1087 <sup>a</sup>	40.9	26.5	8.1
	(45)	(24)	(44)	(14.0)	(8.0)	(12.7)
Rural. . . . .	1131 <sup>a</sup>	849 <sup>b</sup>	971	55.8 <sup>a</sup>	4.2	-33.2 <sup>b</sup>
	(52)	(104)	(49)	(17.6)	(33.2)	(17.3)



TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures Paid by Private Insurance						
Men 19 to 64 Years Old:						
Urban. . . . .	1272 <sup>a</sup>	1645 <sup>b</sup>	2808 <sup>c</sup>	66.9	69.2	-74.8
	(62)	(83)	(216)	(18.3)	(32.4)	(55.1)
Rural. . . . .	1466	1991	2172	110.4	155.8	-56.6
	(91)	(227)	(270)	(26.4)	(60.9)	(119.2)
Men 65 Years or Older						
Urban. . . . .	1017 <sup>a</sup>	1363 <sup>b</sup>	<u>1419</u> <sup>b</sup>	-8.4	90.9	-2.4
	(75)	(78)	(123)	(28.8)	(25.8)	(50.0)
Rural. . . . .	918	1552	<u>969</u>	14.9	-46.0	28.0
	(91)	(433)	(81)	(24.1)	(123.7)	(32.5)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures Paid by Medicare						
Men 19 to 64 Years Old:						
Urban. . . . .	<u>126</u> <sup>a</sup>	91 <sup>a</sup>	393 <sup>b</sup>	6.1	5.7	20.0
	(15)	(24)	(55)	(3.4)	(5.9)	(19.9)
Rural. . . . .	<u>269</u> <sup>a</sup>	54 <sup>b</sup>	710 <sup>c</sup>	25.4	-4.5	13.1
	(44)	(15)	(162)	(11.4)	(5.8)	(52.6)
Men 65 Years or Older:						
Urban. . . . .	3216 <sup>a</sup>	2813 <sup>a</sup>	4278 <sup>b</sup>	80.5	137.1	23.2
	(166)	(186)	(173)	(49.2)	(41.4)	(73.4)
Rural. . . . .	4033 <sup>a</sup>	2665 <sup>b</sup>	4773 <sup>a</sup>	150.6	-49.6	30.3
	(346)	(317)	(365)	(157.6)	(102.5)	(95.9)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Medical Expenditures Paid by Other Payers						
Men 19 to 64 Years Old:						
Urban. . . . .	404 <sup>a</sup> (37)	173 <sup>b</sup> (18)	1180 <sup>c</sup> (115)	9.8 (7.1)	0.0 (5.2)	-76.0 (41.0)
Rural. . . . .	479 <sup>a</sup> (44)	179 <sup>b</sup> (35)	991 <sup>a</sup> (202)	22.9 (14.9)	-1.1 (12.4)	7.5 (86.9)
Men 65 Years or Older:						
Urban. . . . .	446 <sup>a</sup> (38)	194 <sup>b</sup> (36)	572 <sup>a</sup> (74)	8.2 (8.3)	10.6 (11.0)	-26.2 (22.3)
Rural. . . . .	562 <sup>a</sup> (68)	127 <sup>b</sup> (19)	605 <sup>a</sup> (81)	29.4 (19.1)	9.8 (7.1)	-20.2 (26.2)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Expenditures for Inpatient Care						
Men 19 to 64 Years Old:						
Urban. . . . .	631 <sup>a</sup>	583 <sup>a</sup>	2270 <sup>b</sup>	16.5	0.0	-140.9
	(69)	(57)	(199)	(18.3)	(20.9)	(65.9)
Rural. . . . .	841 <sup>a</sup>	698 <sup>a</sup>	1725 <sup>b</sup>	42.7	30.8	-52.0
	(66)	(167)	(188)	(20.1)	(39.0)	(66.6)
Men 65 Years or Older:						
Urban. . . . .	2226 <sup>a</sup>	1853 <sup>a</sup>	3240 <sup>b</sup>	-1.0	98.7	-141.7
	(157)	(174)	(183)	(53.9)	(42.1)	(77.5)
Rural. . . . .	2645	2126 <sup>a</sup>	3702 <sup>b</sup>	0.3	-187.1	-78.5
	(303)	(466)	(340)	(137.9)	(129.4)	(94.6)

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MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Expenditures for Hospital-Based Outpatient and Emergency Room Care						
Men 19 to 64 Years Old:						
Urban. . . . .	<u>304</u> <sup>a</sup>	350 <sup>a</sup>	920 <sup>b</sup>	12.2	16.2	-31.4
	(9)	(26)	(59)	(2.9)	(9.3)	(21.8)
Rural. . . . .	<u>409</u> <sup>a</sup>	448 <sup>a</sup>	997 <sup>b</sup>	25.5	31.7	21.5
	(25)	(46)	(151)	(6.5)	(16.1)	(66.1)
Men 65 Years or Older						
Urban. . . . .	<u>441</u> <sup>a</sup>	<u>590</u> <sup>b</sup>	918 <sup>c</sup>	2.4	9.3	-30.9
	(27)	(47)	(83)	(9.7)	(12.7)	(24.5)
Rural. . . . .	<u>660</u> <sup>a</sup>	<u>387</u> <sup>b</sup>	830 <sup>a</sup>	30.2	1.7	9.0
	(86)	(46)	(69)	(24.4)	(13.0)	(18.8)

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MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Expenditures for Office-Based Care						
Men 19 to 64 Years Old:						
Urban. . . . .	426 <sup>a</sup>	473 <sup>a</sup>	1248 <sup>b</sup>	21.7	24.3	74.7
	(9)	(17)	(70)	(2.5)	(6.5)	(27.5)
Rural. . . . .	440 <sup>a</sup>	565 <sup>a</sup>	1181 <sup>b</sup>	<b>32.5<sup>a</sup></b>	53.8	112.9 <sup>b</sup>
	(28)	(48)	(98)	(10.0)	(18.6)	(29.7)
Men 65 Years or Older:						
Urban. . . . .	982 <sup>a</sup>	922 <sup>a</sup>	<u>1661<sup>b</sup></u>	53.1 <sup>a</sup>	79.9	163.3 <sup>b</sup>
	(39)	(34)	(114)	(14.0)	(10.6)	(36.7)
Rural. . . . .	924 <sup>a</sup>	1011	<u>1303<sup>b</sup></u>	43.5	21.9	91.4
	(72)	(152)	(85)	(23.7)	(49.9)	(27.8)

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MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Expenditures for Pharmacy Services						
Men 19 to 64 Years Old:						
Urban. . . . .	<u>384</u> <sup>a</sup>	387 <sup>a</sup>	987 <sup>b</sup>	46.0 <sup>a</sup>	35.7 <sup>a</sup>	80.7 <sup>b</sup>
	(12)	(11)	(49)	(5.1)	(3.6)	(15.0)
Rural. . . . .	<u>473</u> <sup>a</sup>	447 <sup>a</sup>	1048 <sup>b</sup>	53.4 <sup>a</sup>	31.5 <sup>a</sup>	126.2 <sup>b</sup>
	(18)	(29)	(69)	(5.4)	(9.3)	(21.6)
Men 65 Years or Older:						
Urban. . . . .	<u>1017</u> <sup>a</sup>	874 <sup>b</sup>	1318 <sup>c</sup>	<u>83.0</u>	72.3	78.9
	(28)	(33)	(35)	(8.0)	(9.5)	(11.0)
Rural. . . . .	<u>1237</u> <sup>a</sup>	820 <sup>b</sup>	1296 <sup>a</sup>	<u>146.7</u> <sup>a</sup>	100.1	58.4 <sup>b</sup>
	(49)	(53)	(55)	(23.2)	(20.1)	(14.8)

TABLE 1. MEDICAL EXPENDITURES, OVERALL, BY DIFFERENT PAYERS, AND BY CATEGORIES OF CARE. MEAN ANNUAL VALUES (WITH SES), AND SLOPES (REGRESSION COEFFICIENTS, WITH SES), ACROSS ELEVEN YEARS OF MEPS DATA, 1996 THROUGH 2006, FOR URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS			SLOPE (SE) OF BEST-FITTING LINE		
	NON-VETS	VETS NOT IN VA	VETS WHO USED VA	NON-VETS	VETS NOT IN VA	VETS WHO USED VA
Expenditures for Other Medical Care						
Men 19 to 64 Years Old:						
Urban. . . . .	490 <sup>a</sup>	559 <sup>a</sup>	1178 <sup>b</sup>	7.1	15.4	-30.5
	(13)	(27)	(72)	(3.5)	(8.6)	(24.9)
Rural. . . . .	532 <sup>a</sup>	537 <sup>a</sup>	1202 <sup>b</sup>	31.7	21.4	-6.3
	(32)	(41)	(167)	(9.1)	(14.4)	(74.7)
Men 65 Years or Older:						
Urban. . . . .	1043 <sup>a</sup>	864 <sup>a</sup>	1421 <sup>b</sup>	-16.5	4.1	-32.4
	(67)	(41)	(93)	(19.2)	(11.1)	(25.4)
Rural. . . . .	1154	825 <sup>a</sup>	1442 <sup>b</sup>	29.2	-17.4	-97.8
	(111)	(188)	(121)	(32.0)	(55.6)	(43.4)

NOTES: Differences that are statistically significant at  $p < .01$  or better are indicated. Slopes that are significantly different from zero are in bold-face italics. Group means or slopes in the same row that are significantly different from one another have different superscripts. Significant urban-rural differences are underlined.



For men younger than 65, out-of-pocket payments for medical care averaged about 60 percent more for VA users than for other men; over time, though, these personal expenditures did not increase significantly for VA users as they did for other men. Private insurance paid the most for the medical care of men younger than 65, regardless of their veteran – VA user status; in fact, insurance paid more for the care of VA users than other men under 65, though the differences were significant only for urban men. As with out-of-pocket payments, insurance expenditures increased for other men but not for VA users. Younger men used Medicare very little, though rural VA users used Medicare more than others; compared with other men, both urban and rural VA users also had more care paid for by other sources, such as Medicaid or Workmen’s Compensation. For these payer categories, time trends were inconsistent and usually non-significant.

Among men 65 years or older, VA users paid as much out-of-pocket for care as other men, but did not show the same increases over time. Time trends for the other payer categories generally were inconsistent and non-significant. Except for rural VA patients, elderly veterans used insurance substantially more than non-veterans to pay for care. Medicare paid the most for elderly men’s care, regardless of group or residence; VA users, in fact, had more care paid by Medicare than other men. Use of other payment sources was relatively low, and VA users relied on them no more than non-veterans.

In every care category, expenditures were higher for VA users than other men, regardless of age group or residence. Inpatient care was the costliest, accounting for at least one-fourth of medical expenditures for men younger than 65 and more than one-third of expenses for older men. Some noteworthy urban-rural differences emerged. The inpatient care (in either VA or non-VA hospitals) received by VA users younger than 65 averaged \$545 lower for rural than urban veterans ( $p < .05$ ). Among VA users 65 or older, rural veterans averaged \$358 less in office-based care than urban veterans ( $p < .01$ ). Time trends were inconsistent and small for inpatient care, hospital-based outpatient and emergency room care, and for other medical care; for VA users, inpatient expenditures actually declined (non-significantly). Yet expenditures for office-based care and pharmacy services increased consistently (significantly in most cases); among men of working age, rural VA users had the largest rates of increase.

Table 2 shows the VA expenditures for VA users, broken down by categories of care. There were no significant urban – rural differences in VA expenditures or in most time trends. VA expenditures for office-based care and pharmacy services

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TABLE 2. ANNUAL MEDICAL EXPENDITURES PAID BY THE VA FOR DIFFERENT CATEGORIES OF CARE. MEAN VALUES (WITH SEs) AND SLOPES (WITH SEs) OF BEST-FITTING STRAIGHT LINES, ACROSS ELEVEN YEARS, 1996 THROUGH 2006, FOR VETERANS WHO USED ANY VA CARE, WITH URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP.

MEASURE	ANNUAL MEAN (SE) ACROSS ALL ELEVEN YEARS		SLOPE (SE) OF BEST-FITTING LINE	
	URBAN	RURAL	URBAN	RURAL
Expenditures for Inpatient Care				
Men 19 to 64 Years Old. . . . .	438 (92)	454 (118)	-22.0 (25.1)	63.8 (30.6)
Men 65 Years or Older. . . . .	275 (62)	356 (95)	-8.8 (11.7)	-34.6 (24.3)
Expenditures for Hospital-Based Outpatient and Emergency Room Care				
Men 19 to 64 Years Old. . . . .	219 (27)	186 (27)	8.5 (9.8)	18.1 (10.0)
Men 65 Years or Older. . . . .	133 (31)	89 (15)	-8.9 (8.2)	-6.1 (4.2)
Expenditures for Office-Based Care				
Men 19 to 64 Years Old. . . . .	355 (38)	342 (39)	54.1 (16.6)	53.0 (12.0)
Men 65 Years or Older. . . . .	226 (20)	173 (18)	29.1 (7.1)	13.0 (5.3)
Expenditures for Pharmacy Services				
Men 19 to 64 Years Old. . . . .	280 (20)	348 (37)	<u>30.4</u> (7.5)	<u>62.3</u> (9.8)
Men 65 Years or Older. . . . .	418 (17)	471 (29)	45.7 (6.1)	37.4 (8.6)

TABLE 2. ANNUAL MEDICAL EXPENDITURES PAID BY THE VA FOR DIFFERENT CATEGORIES OF CARE. MEAN VALUES (WITH SEs) AND SLOPES (WITH SEs) OF BEST-FITTING STRAIGHT LINES, ACROSS ELEVEN YEARS, 1996 THROUGH 2006, FOR VETERANS WHO USED ANY VA CARE, WITH URBAN MEN AND RURAL MEN SEPARATELY, BY AGE GROUP. (CONTINUED)

Expenditures for Other Medical Care				
Men 19 to 64 Years Old. . . . .	233	203	5.7	18.1
	(26)	(25)	(11.2)	(10.5)
Men 65 Years or Older. . . . .	205	209	-21.6	-34.5
	(32)	(31)	(11.1)	(14.8)

NOTES: Differences that are statistically significant at  $p < .01$  or better are indicated. Slopes that are significantly different from zero are in bold-face italics. Significant urban-rural differences are underlined.

rose across the years; in particular, the greatest increase emerged for pharmacy services by rural veterans younger than 65.

DISCUSSION AND CONCLUSION

Rural residents are often less healthy than urban residents (Glasgow, Morton, and Johnson 2004), and veterans enrolled in VA care are less healthy than other healthcare-using civilians (Wilson and Kizer 1997). MEPS data for 1996-2006 indicate that rural veterans who used the VA for any of their healthcare used much more medical care than other men, but most of it was obtained from non-VA providers. Indeed, average expenditures for their care by private insurance, Medicare, other payers like Medicaid or Workmen’s Comp, or out-of-pocket were greater than for other men. Yet the rural VA users, who report poorer health than their urban counterparts (West and Weeks 2009), did not use more healthcare and had less treatment paid by insurance. In fact, rural VA patients younger than 65 obtained less care, specifically, less non-VA care and less inpatient care, which is consistent with having poorer access due to both distances and finances.

Nevertheless, linear trends in inflation-corrected expenditures from 1996 through 2006 indicate that while total medical expenditures and personal medical payments increased for most men, they did not for VA users. Nor did total VA expenditures increase, except for a sharp rise for younger rural VA patients who, compared with their urban counterparts, used less VA care in the earlier years but

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more in later years. While MEPS data might be limited in that the numbers of rural respondents are not high, these trends suggest that with the introduction of CBOCs, and greater use of office-based and pharmacy care, the VA has substantially increased the care it provides to rural veterans, particularly those younger than 65 whose treatment options have been sparse. Another limitation in MEPS data is in the lack of long-term outcomes information beyond the two years that each subject participates. So it remains unknown whether rural VA users' lower consumption of non-VA care has any impact on their health outcomes, as higher expenditures do not necessarily ensure better treatment results (Fisher and Welch 1999).

## AUTHOR BIOGRAPHIES

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