

How Veterans Use Stroke Services in the VA and Beyond

Huanguang Jia, PhD, Yu E. Zheng, MS, Diane C. Cowper, PhD, Samuel S. Wu, PhD, Bruce W. Vogel, PhD, Pamela W. Duncan, PhD, and Dean Reker, PhD

Which veterans rely on the VA for stroke-related health care and which ones seek care outside of that system? These researchers found important sociodemographic and clinical differences characterized the various health care usage patterns.

Stroke is among the leading causes of death in the United States and a major cause of serious and long-term disability.¹ Within the VA system, roughly 80,000 patients are stroke survivors. Each year, about 15,000 veterans are hospitalized for stroke, and 2,500 of them receive acute rehabilitation services.²⁻⁴ Stroke-related diseases cost the VA more than \$1 billion annually.⁴ Yet, little information is available about the inpatient or outpatient care VA patients receive from multiple health care sources following stroke—and no research has been conducted that compares the characteristics of patients who relied exclusively upon the VA for poststroke care with those of patients whose poststroke care was provided through the VA as well as

such health care resources as Medicare, Medicaid, or both.

In 1989, 42% of the 2.3 million veterans who obtained health care within the VA were also eligible for Medicare, and 22% of them received some Medicare benefits.^{5,6} Over the next decade, the proportion of such dually eligible VA patients increased markedly. Hynes found that, in 1999, half of the 6.4 million veterans were eligible both for VA and Medicare benefits.⁷ Hynes' investigation also demonstrated that 40% of his study cohort and 72% of the dually eligible patients were over age 65.⁷ Barnett and colleagues found that, in a Midwest VISN in 1998, two thirds of the VA patients aged 65 and older also received care under the Medicare program.⁸ As the number of VA health care enrollees increases and the proportion of veterans aged 65 and older rises rapidly over the next several years, the number of individuals who are eligible both for VA and Medicare programs is expected to escalate as well, particularly among veterans requiring care related to stroke, which is associated with advanced age.

How best to synchronize public systems of medical care—especially for individuals eligible to participate in multiple systems—has been a re-

curring theme in U.S. health policy development. The potential upside of using multiple systems is that it may increase flexibility, accessibility, and choice and produce better outcomes, owing to a richer mix of services. The potential downside is that it may lead to discontinuity and inefficiency of care. Moreover, the use of multiple systems may present opportunities for cost shifting and increases in VA costs as other programs attempt to slow spending growth.⁹⁻¹⁵ These concerns have made out-of-system usage an important topic of study for the VA.

Studies focused on the use of health care services for reasons other than stroke (for example, surgery, hip fracture, and acute myocardial infarction) have documented significant differences—in terms of demographic characteristics, socioeconomic status, accessibility, efficiency of care, health status, outcome, and patient satisfaction—between dual users and those who received care through either the VA or Medicare.^{5,9-14,16,17} Understanding veterans' use of VA and non-VA stroke services and the sociodemographic and clinical characteristics associated with different health care usage patterns can help clinicians, researchers, and policy makers pro-

Dr. Jia is a research health scientist, **Ms. Zheng** is a statistician, **Dr. Cowper** is a research health scientist, **Dr. Wu** is a statistician, **Dr. Vogel** is a health economist and research health scientist, and **Dr. Duncan** is a senior research health scientist, all at the VA's Rehabilitation Outcomes Research Center of Excellence, Gainesville, FL. **Dr. Reker** is a senior health scientist at the Kansas City VA Medical Center, Kansas City, MO and an associate professor in the department of health policy and management, Kansas University Medical Center, Kansas City. Dr. Wu is also an assistant professor in the division of biostatistics at the University of Florida, Gainesville.

vide high quality, cost-effective stroke care and ensure continuity of care for VA patients. To this end, we conducted a retrospective cohort study of VA stroke survivors who had used either VA or VA plus non-VA acute and postacute stroke care.

GATHERING DATA

We identified VA patients who had been treated for stroke, all of whom: (1) lived in Florida; (2) had a primary inpatient admission or discharge diagnosis that matched Reker's high sensitivity International Classification of Diseases (ICD) 9 codes¹⁸ in the VA, Medicare, or Florida Medicaid inpatient databases; (3) were identified in both the Functional Status Outcomes Database (FSOD) and VA inpatient databases; and (4) were confirmed veterans between calendar years 2000 and 2001. We placed no restrictions on patient age, race, or gender.

We obtained information concerning demographics, inpatient episodes, and outpatient encounters from the administrative databases of the VA Austin Automation Center (VA data), the VA Information Resource Center (Medicare data), and the Agency for Health Care Administration for Florida (Medicaid data). The FSOD provided information on rehabilitation usage after stroke for a primary VA inpatient cohort, and the beneficiary identification and records locator subsystem file provided patient mortality information. To ensure that a patient in one system was recorded as the same person in the others, we used dual-system matching developed by Fleming and colleagues.⁵ Since VA data are stored by federal fiscal year (FY) and Medicare and Florida Medicaid data are stored by calendar year, we used the calendar year system in this study, extracting the five FYs of VA data (1999 to 2003) that corresponded to the three

calendar years covered by this study (2000 to 2002).

We divided the cohort into four user groups: (1) patients who had received care under VA, Medicare, and Medicaid (triple); (2) patients who had received either inpatient or outpatient care under both VA and Medicare (VA-Medicare); (3) patients who had used inpatient or outpatient care under both VA and Florida Medicaid (VA-Medicaid); and (4) patients who used VA inpatient or outpatient care only (VA only).

Sociodemographic variables examined for this study included race/ethnicity, age, marital status, gender, and priority status for VA health care (classified as high or low). We defined patient priority on the basis of two interconnected variables recorded in VA patient treatment files: the VA Means Test¹⁹ and the percentage of service-connection. Patients were categorized as high priority if their Means Test was coded as either AS (category A service-connected) or AN (category A non-service-connected), which is equivalent to priority grouping 1 through 6. The percentage of service-connection variable was used to verify the patients' Means Test codes and replace the unknowns.

Clinical variables included comorbid conditions, stroke type (hemorrhagic, ischemic, uncertain, or multiple), 12-month poststroke rehabilitation usage, and death. A modified Charlson comorbidity index²⁰ was used to assess the patients' comorbid conditions at the index stroke event, with higher weighted summary scores indicating a greater burden of comorbidity.

ANALYZING THE DATA

Of the 1,953 study patients diagnosed with stroke between 2000 and 2001, 30% used VA only care during the 12-month poststroke period. The re-

maining 70% relied on other health care programs as well—60% were dual VA-Medicare users, 3% were dual VA-Medicaid users, and 7% were triple users (Figure).

Compared with other user groups, the VA-Medicare group had a significantly larger proportion of white, married, and older patients (Table 1). This group also had a significantly smaller proportion of patients with high priority ranking for VA health care. On the other end of the spectrum, the VA-Medicaid group was significantly younger and more likely to be unmarried than other groups.

The VA-Medicaid group had significantly less comorbidity and more hemorrhagic stroke than other user groups (Table 2). At 12 months poststroke, about 80% of the study patients had received rehabilitation care, and the triple group was significantly more likely than the others to have received such services. The 12-month poststroke crude death rate was significantly higher in the VA-Medicare group than in other groups.

IMPORTANCE OF OUR FINDINGS

Our findings suggest that there are a higher proportion of VA-Medicare users among elderly VA patients receiving treatment for stroke than among elderly VA patients in general. VA-Medicare users represent 72.8% of the patients in our study who are aged 65 and older. By contrast, a study conducted by Barnett and colleagues found that 66.9% of 23,654 VA patients aged 65 years and older were VA-Medicare dual users.⁸ Perhaps clinical and sociodemographic differences between the two samples account for the higher rate of dual users among elders in our cohort: Since our cohort had been diagnosed with stroke, which tends to occur later in life, Medicare eligibility was more likely in this group.

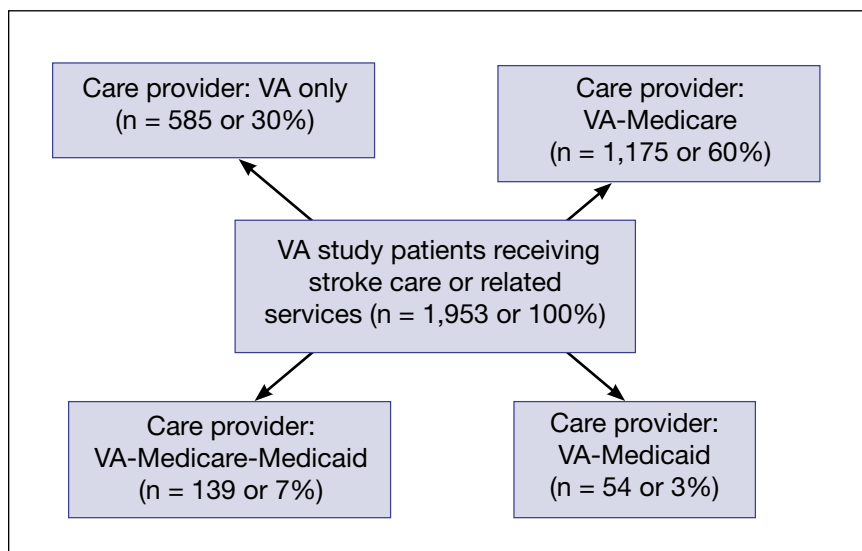


Figure. Health care systems providing 12-month poststroke care for VA study cohort.

the characteristics of VA-Medicaid dual users or triple users with which to compare our findings. Nevertheless, we have shown that VA only, VA-Medicaid, and VA-Medicare-Medicaid users were similar to one another in terms of race/ethnicity and priority classification for VA health care. Furthermore, VA-Medicaid users were more likely than the VA only and triple users to be younger and unmarried.

Compared with other groups, we found that the VA-Medicaid users had less comorbidity and more hemorrhagic stroke. This may be due to their significantly lower age. Our results also show that triple users were more likely to receive poststroke rehabilitation, which may indicate that this group can more easily access health care than can the other groups. The VA-Medicare users had a higher crude rate of poststroke death than other groups, perhaps because they were older.

Our findings add to what is known about the sociodemographic and clinical characteristics of the various user groups. We were able to confirm earlier findings that VA only users were

more likely than VA-Medicare users to be nonwhite, younger, divorced or widowed, and classified as high priority for VA health care.^{8,9,13,17} We were unable to locate a research report on

Table 1. Patient sociodemographic characteristics by user group

Sociodemographic characteristic	Study cohort (n = 1,953)	User group				P value*
		VA only (n = 585)	VA-Medicare (n = 1,175)	VA-Medicaid (n = 54)	Triple (n = 139)	
Race/ethnicity (%)						< .0001
White	83.4	76.8	88.0	77.8	74.8	
Black	14.2	19.1	10.5	18.5	23.7	
All other	2.4	4.1	1.5	3.7	1.4	
Age (SD)	70.4 (10.8)	64.6 (11.6)	73.8 (8.5)	54.4 (8.8)	72.9 (10.3)	< .0001
Marital status (%)						< .0001
Married	57.3	47.7	64.0	27.8	52.5	
Divorced/widowed	36.6	44.3	31.7	48.1	40.3	
All other	6.1	8.0	4.3	24.2	7.2	
Gender (%)						.09
Male	96.8	97.3	96.2	100.0	99.3	
Female	3.2	2.7	3.8	0.0	0.7	
High priority (%)	86.3	92.7	82.0	92.6	92.8	< .0001

*The P value reflects testing between groups using Chi-square analysis on discrete variables and F tests on continuous variables.

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Table 2. Patient clinical characteristics by user group

Clinical characteristic	Study cohort (n = 1,953)	User group				P value*
		VA only (n = 585)	VA-Medicare (n = 1,175)	VA-Medicaid (n = 54)	Triple (n = 139)	
Comorbidity† (SD)	1.0 (1.2)	1.0 (1.3)	1.0 (1.2)	0.5 (1.1)	1.2 (1.4)	.006
Stroke type (%)						< .0001
Hemorrhagic	9.4	76.8	88.0	77.8	74.8	
Ischemic	70.2	19.1	10.5	18.5	23.7	
All other	20.5	4.1	1.5	3.7	1.4	
12-month post-stroke outcomes (%)						
Rehabilitation	80.4	66.3	86.4	74.1	91.4	< .0001
Death	16.3	13.2	18.3	14.8	13.7	.0378

*The P value reflects testing between groups using Chi-square analysis on discrete variables and F tests on continuous variables.

†Modified Charlson comorbidity index²⁰ was used to assess the patients' comorbid conditions at the index stroke event, with higher weighted summary scores indicating a more severe burden of comorbidity.

LOOKING AHEAD

This study was conducted in one region of the United States, which limits the generalizability of our findings. Nonetheless, our results have several clinical and policy implications. For example, the findings may help improve VA clinicians' understanding of their patients' demographic characteristics and continuum of care poststroke. They also demonstrate the importance of considering dual or triple system usage when conducting program evaluations for health care systems with a high proportion of dual or triple enrollees. Finally, our results can serve as a basis for future studies on the characteristics of stroke survivors from different geographic regions, using a national sample. Future research is necessary to compare the outcomes of different user groups and to understand how such factors as accessibility, scope of services provided by each system, plan benefits, and patient satisfaction may affect patient preference and choice of care across different health care systems. ●

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E-mail us at:
fedprac@qhc.com