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Utilization of Care Outside the Veterans Affairs Health Care System by US Veterans with Rheumatoid Arthritis

Pascale Schwab, MD¹, Harlan Sayles, MS², Debra Bergman, MPH², Grant W. Cannon, MD³, Kaleb Michaud, PhD^{2,4}, Ted R. Mikuls, MD, MSPH², and Jennifer Barton, MD¹

¹VA Portland Health Care System; Oregon Health & Science University, Portland, OR, USA

²Veterans Affairs (VA) Nebraska-Western Iowa Health Care System; Division of Rheumatology, Nebraska Arthritis Outcomes Research Center, University of Nebraska Medical Center, Omaha, NE, USA

³VA Salt Lake City Health Care System; University of Utah School of Medicine, Salt Lake City, UT, USA

⁴National Data Bank for Rheumatic Diseases, Wichita, KS, USA

Abstract

Objectives—Many veterans enrolled in Veterans Affairs (VA) also receive care through other healthcare systems. Both VA and non-VA healthcare use must therefore be considered when conducting research in this population. This study characterized dual care utilization in veterans with rheumatoid arthritis (RA) and explored associations with RA disease activity.

Methods—Through a questionnaire mailed to RA patients at three VA sites, veterans reported medical services by non-VA primary care and subspecialty providers, comorbidities, non-VA medications, and hospitalizations. Disease activity score (DAS)-28 and Multidimensional Health Assessment Questionnaire (MD-HAQ) were recorded during VA clinic visits, and respondent groups compared.

Results—Of the 510 participants surveyed, 318 (62%) responded. Respondents were older (69 vs. 66 years, $p=0.006$), more likely non-smokers (80% vs. 67%, $p=0.001$) and had lower disease activity (DAS-28 3.3 vs. 3.8, $p<0.001$; MD-HAQ 0.8 vs. 0.9, $p=0.01$) than non-respondents ($n=192$, 38%). The respondents with a non-VA provider ($n=130$, 41%) were older (71 vs. 68 years, $p=0.001$) and had more education (14 vs. 13 years, $p=0.021$) than non-dual care users. Only 6% of respondents reported having a non-VA rheumatologist; with 2% receiving a non-VA prescribed biologic or disease-modifying anti-rheumatic drug.

Conclusion—In this study, VA beneficiaries with RA had lower dual-care utilization than previously reported for the general VA population, with few patients receiving dual rheumatology care or non-VA RA medications. This survey suggests that most US Veterans with RA who access VA care use the VA as their primary source of arthritis care.

Keywords

rheumatoid arthritis; dual care; registry

Introduction

For many US Veterans, the Veterans Affairs Health Administration (VA) provides comprehensive health care services. However, over two-thirds of veterans enrolled in the VA have access to non-VA care through other government programs (e.g. Medicare, Medicaid) and/or private insurance. In fact about half of these dually enrolled veterans utilized several health care systems in 1999¹, a trend that has been increasing over the past decade^{2, 3}.

While the use of multiple health care systems may allow for more rapid access to medical care, the practice may result in fragmented and/or redundant care for veterans with chronic health conditions^{4, 5, 6}, though recent studies have found no difference in intermediate quality indicators^{7, 8}. Furthermore, research evaluating care and determinants of health outcomes of veteran populations using VA data must consider the potential that veterans are accessing care outside the VA system and take into account the extent and potential impact of dual care utilization on interpretation of study results. For example, veterans who use both VA and Medicare have a greater number of diagnoses recorded in Medicare than the VA system so that including data from one source may underestimate the burden of illness and health care utilization among these patients⁹.

Though many studies have evaluated associations between demographic, socioeconomic, racial and geographic factors as well as medical conditions with use of non-VA care, the extent of dual use among veterans with RA has not been examined to date. Understanding this use and its potential impact on care is particularly relevant as RA is a chronic health condition that has been associated with substantial morbidity and accelerated mortality among veterans¹⁰ as well as with a rapid rise in related health care expenditures¹¹. The Veterans Affairs Rheumatoid Arthritis (VARA) registry is a longitudinal, observational study of veterans with RA that has helped answer many research questions related to morbidity and mortality^{10, 12, 13}, measures of disease activity^{14, 15}, RA risk factors^{16, 17, 18, 19}, correlates of disease activity and severity^{20, 21, 22}, as well as health care use^{23, 24, 25}. Though valuable, these studies have not accounted for the possibility of non-VA care utilization.

This study was designed to help elucidate the level of dual care utilization by veterans with RA, to assess the characteristics of non-VA care utilized, specifically the extent of RA care delivered outside the VA, and to identify any association between dual care and RA disease activity measures.

Methods

Study Population

VARA is a longitudinal, observational study of US Veterans with RA initiated in 2003 with participation from 12 VA Medical Centers across the US. All patients fulfill the 1987 American College of Rheumatology classification criteria²⁶, have disease onset after 18

years of age, and provide informed consent. VARA is a biologic and data repository which links banked serum and DNA samples to patient-level information collected in the registry from routine rheumatology clinic visits and allows for additional linkages with nationwide VA databases (such as the Pharmacy Benefits Management and the Corporate Data Warehouse). Data available in VARA and through these additional linkages include patient socio-demographics, co-morbidities, medications, and longitudinal disease activity measures, among others²⁷.

For this study, veterans at 3 of the 12 participating sites (Portland, Oregon; Omaha, Nebraska; and Salt Lake City, Utah) were mailed a paper-based questionnaire that inquired about their health care use outside the VA. The questionnaire was based on a template provided by the National Bank for Rheumatic Diseases²⁸. If no response was received within 6 weeks, the questionnaire was mailed again. Veterans were asked about their age, height and weight, smoking status, health problems, medical care outside of the VA (primary care and subspecialty care), and number of clinic visits to VA and non-VA doctors, hospitalizations, and surgeries within the preceding 6 months. Veterans were also asked to list all of their medications both for RA and non-RA conditions and to state whether each was VA or non-VA issued. Disease activity measures collected at the time of the last VARA clinic visit prior to the survey date on record were analyzed. These measures included Disease Activity Score 28 (DAS-28) and Multidimensional Health Assessment Questionnaire (MD-HAQ) scores. Additional RA measures examined included disease duration, rheumatoid factor (RF) status, anti-cyclic citrullinated (CCP) antibody status, body mass index (BMI), and the presence of radiographic erosions at enrollment²⁹. Any data on non-respondents was gathered from the VARA registry as recorded at the time of the VARA visit closest to the date of the survey. This study was approved by the Institutional Review Board at each site as well as by the VARA Scientific Ethics Advisory Committee.

Statistical Analysis

Veterans were classified as dual users if they reported having either a non-VA primary care provider and/or non-VA subspecialist and as non-dual users if they reported VA-only reliance on health care providers. A hospitalization outside the VA was not considered dual use as the purpose of the analysis was to evaluate dual longitudinal outpatient clinic care utilization. T-tests for continuous variables and Pearson chi-square tests for categorical variables were used to compare characteristics of respondents vs. non-respondents, as well as of dual users vs. non-dual users. Fischer's exact test was used to compare comorbidities and disease activity measures between dual and non-dual users. All analyses were performed using STATA version 14 (STATA Corp College Station, TX).

Results

Questionnaires were mailed to 510 Veterans, and 318 (62%) responded (76% in Oregon, 70% in Nebraska, and 56% in Utah). A comparison of respondents to non-respondents (table 1) showed that 78% of respondents had a study visit within 6 months of the time the questionnaire was mailed compared to only 52% of non-respondents. Respondents were on average three years older than non-respondents at the time of the survey (mean [SD] 69 [10]

vs. 66 [11] years, $p=0.006$). Additionally, 80% of respondents were never or former smokers compared to 67% of non-respondents ($p=0.001$). Cardiovascular co-morbidities were more frequent in respondents: 51% and 24% of respondents had hypertension or cardiovascular disease listed at their last VARA visit compared to 42% and 15% of non-respondents (p -value, 0.05 and 0.017 respectively). Furthermore, respondents had a lower recorded DAS-28 and MD-HAQ scores than non-respondents (DAS-28 3.3 vs. 3.8, $p<0.001$; MD-HAQ 0.8 v. 0.9, $p=0.01$). There were no differences found in BMI, disease characteristics (RF status, CCP antibody status, presence of radiographic erosions), or medication use (corticosteroid, disease modifying anti-rheumatic drug [DMARD], biologic drug) between respondents and non-respondents.

Of the 318 respondents, 129 (40.6%) reported being dual users (table 2). Over half (53%) of patients 65 years and older were dual users compared to only 31% of those under 65. Nearly two-thirds (65%) of dual users were 65 years or older compared to only 34% of non-dual users. Compared to non-dual users, dual users were on average 3 years older (mean [SD] 71 [11] vs. 68 [9] years, $p=0.001$) and had one more year of education (mean [SD] 14 [3] vs. 13 [2], $p=0.025$). BMI, smoking status, RA disease duration, race and gender were not associated with non-dual vs. dual use. Dual users were more likely to report a heart condition (19% vs. 7%, $p=0.002$) or stroke (4% vs. 0%, $p=0.011$) within the preceding 6 months, as well as a history of cancer (24% vs. 14%, $p=0.038$), cataract (33% v. 20%, $p=0.018$), or any orthopedic procedure (28% v. 14%, $p=0.002$).

Among dual users (table 3), over two-thirds (65%) reported having a non-VA primary care provider and half (50%), a non-VA specialist. Among non-VA specialists visited by dual users, cardiologists and orthopedists (60% and 18% respectively) were most frequent. Only 14% of dual users or 6% of the total respondents reported having a non-VA rheumatologist. Dual users had on average 1.84 (SD 1.02) visits to a VA rheumatologist in the preceding 6 months compared to non-dual users with 1.78 (SD 0.92), $p=0.60$. Dual users additionally had 1.87 (SD 1.10) visits to a private rheumatologist and 2.07 (SD 1.23) to a private primary care provider in the preceding 6 months. One quarter (25%) of dual users reported having been hospitalized at a non-VA facility over the preceding 6 months compared to 5% of non-dual users ($p<0.001$). Among Veterans who indicated a non-VA hospitalization, 76% indicated a single admission. Reason for hospitalization was medical in 54% and surgical in 46%.

Although approximately 1 in 4 (24%) of respondents reported taking non-VA medications, very few reported taking a non-VA prescribed medication for RA. In fact, only one patient reported taking a non-VA prescribed biologic DMARD, whereas 6 patients (2%) reported taking a non-VA synthetic DMARD and 9 patients (3%) a non-VA corticosteroid.

RA disease activity scores as measured by the mean MD-HAQ and DAS-28 recorded at the last VARA visit on file or within 6 months of the survey date were virtually identical in both dual and non-dual care groups. Disease activity based on the DAS-28 was 3.3 (SD 1.4) vs. 3.3 (SD 1.5) and the mean MD-HAQ scores 0.80 (SD 0.55) vs. 0.81 (SD 0.62), respectively, for each group at the last VARA visit.

Discussion

To our knowledge, this is the first study to examine the pattern of non-VA health care utilization of a population of US Veterans with RA. This study found that a significant proportion (41%) of veterans with RA enrolled in VARA that responded to our survey accessed non-VA providers in the community, both for primary care as well as subspecialty services, particularly cardiology. However, very few of the respondents reported having dual rheumatology providers (6%) or receiving a non-VA synthetic or biologic DMARD (2%), suggesting that veterans enrolled in VARA receive the overwhelming majority of their RA care within the VA. Though not surprising, this finding supports the RA medication data reported in prior VARA studies.

In this study, fewer patients reported the use of non-VA health care than anticipated. Indeed, greater than 60% of all veterans enrolled in both community and hospital-based primary care clinics have been reported to use Medicare-reimbursed subspecialty care³⁰. A US Veteran enrollee survey administered in 2011 found that 77% of US Veterans had access to non-VA health insurance. Furthermore only 25% reported 100% VA reliance for outpatient care received during 2010, whereas 27% reported no reliance and 48% variable degree of reliance on VA care³¹. Although not a direct comparison, this finding qualitatively contrasts with our results wherein 59% of veterans with RA reported 100% VA reliance. Our findings are surprising particularly since Oregon, Nebraska, and Utah (sites surveyed in this study) include vast rural areas associated with a greater likelihood of non-VA subspecialty reliance³². One possible explanation is that the recent development within the VA of Community-Based Outpatient Clinics (CBOCs), designed to improve community outreach, may have alleviated the need to access non-VA primary care³³. Alternatively, our findings may indicate that the VA plays a central role in the care of veterans with RA as it does for certain patient populations and medical conditions. For example veterans who are women, African-American or have mental health conditions or a higher VA priority rating, are more likely to rely solely on the VA for health care^{32,34}. Conditions of the eyes, ears, and nose for patients under 65 and diabetes mellitus in those over 65 have also been reported to be associated with greater VA reliance³¹. This contrasts with a series of older VA-enrolled patients hospitalized for cardiovascular disease that relied on VA hospitals in only 27% of admissions³⁵. In our study, dual users reported having a higher burden of heart conditions and stroke and reliance on non-VA cardiologists as well as a greater number of orthopedic procedures. This increased use of cardiology and orthopedic services may reflect the need for veterans to access health care more urgently for cardiac conditions as well as for life altering orthopedic procedures. A history of cancer and cataract was also higher in dual care users, again suggesting probable association with the need to access local care for complex cancer treatments and for surgical procedures.

While the use of multiple health care systems may allow for rapid access to medical care, there is concern that this practice could simultaneously result in fragmented and redundant care particularly for veterans with chronic health conditions with multiple readmissions³⁶. Although initial studies suggested that dual-system use was associated with poorer glycemic control in veterans with diabetes⁶, more recent studies have found no difference in intermediate quality indicators (cholesterol, blood pressure, glycosylated hemoglobin in

patients with coronary heart disease, hypertension, and diabetes) when comparing dual users with VA-only users^{7,8}. Similarly, our study found no association between dual care use and RA disease activity, when both objective measures (DAS-28) and patient reported outcomes (MD-HAQ) were analyzed.

Our results have important research and policy implications. First, despite the prevalence of dual use among veterans, the VA appears to play a central role in the rheumatologic care of veterans with RA. The rare use of non-VA dispensed synthetic or biologic DMARDs speaks to the fact that veterans with RA rely on the VA for RA medication benefits. Research studies evaluating the pattern of use and adherence to rheumatologic medications among VA enrollees^{22,24,25} are therefore likely to adequately capture these data. Though VARA strives to capture participants' cardiovascular co-morbidities and hospitalizations prospectively, the high rate of non-VA cardiology access and non-VA hospitalizations by dual care users highlights the importance of linking VA data to other external data sources (e.g. Medicare databases for eligible beneficiaries) when studying health care utilization and/or outcomes related to cardiovascular disease. Second, though few in number, veterans receiving dual rheumatology care had twice the number of rheumatology visits (VA and non-VA combined) as non-dual users. This finding is in line with the growing concern that the federal government could be spending an increasing amount of resources, only to provide redundant care of the same Medicare-VA dual enrollees². Despite covering wide geographic areas including both urban and rural settings, our results suggest that veterans are not likely to seek or have access to dual rheumatology care. This may speak to the relative lack of available rheumatology providers in the community³⁷ or to the quality of rheumatology care veterans receive at the VA, including medication benefits and integrated services.

Our results should be evaluated in light of certain limitations. First, although the response rate was high, this was a survey-based study, which comes with inherent shortcomings and potential bias. Respondents were older and more educated than non-respondents, and were more likely to have cardiovascular disease, to have had a visit within 6 months of the survey, and to have lower disease activity than non-respondents. These characteristics may identify patients more engaged in their medical care thus more likely to respond to the survey, but also with greater access to non-VA care based on age-eligibility. Despite this inherent bias, respondents reported less reliance on non-VA care. Second, this survey was limited to veterans with RA enrolled in VARA. Though this design allowed us to study a population of patients with well-characterized RA and to analyze associations between dual care use and RA disease activity outcomes, not otherwise possible when using large claims databases, it does limit the generalizability of the results to the entire VA population with RA. Third, surveyed sites may not be representative of other more racially diverse VARA sites. Fourth, information on travel distance to the nearest VA clinic or VA medical center, a factor known to affect dual care utilization³⁴, was not available for our analysis. Finally, recent enactment of the Veterans Access, Choice and Accountability Act of August 2014 might impact patterns of non-VA utilization in the future³⁸. This law, which was not fully in effect over the study's survey period, provides veterans living greater than 40 miles from any VA facility or with greater than a 30 day wait time to access VA services the ability to be evaluated in the community.

Despite these limitations, this study provides novel insights into the pattern of dual care use among veterans with RA enrolled in VARA and associations of such practice with medication use, health care utilization, and RA disease activity outcomes of these veterans. Future research to confirm these initial results and assess their generalizability to the RA veteran population nationally is needed and should strive, as necessary, to link VA data with Medicare claims data or other data sources to account for the issue of dual healthcare receipt.

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Significance and Innovation

- The prevalence of dual care among veterans with rheumatoid arthritis (RA) is lower than that reported for the overall VA beneficiary population, suggesting that VA beneficiaries with RA primarily utilize the VA for their rheumatology care.
- Veterans with RA utilizing the VA for RA care rely almost exclusively on the VA to access both synthetic and biologic DMARDs.
- While dual care results in greater total annual visits to a rheumatologist, dual care use among veterans with RA is not associated with better or worse RA disease activity.

Table 1

Comparisons between Respondents and Non-respondents

Variable	Respondents Mean (SD) or %	Non- respondents Mean (SD) or %	p-value
N	318	192	
Age at enrollment (years)	64 (9)	61 (10)	<0.001
Age at time of survey (years)	69 (10)	66 (11)	0.006
Smoking status at enrollment			
Current	20	33	0.001
Former	60	45	
Never	21	22	
Education at enrollment (years)	14 (2)	14 (2)	0.314
BMI *	29 (6)	28 (7)	0.097
RF positive	78	84	0.114
CCP positive	80	81	0.851
Radiographic erosions **	51	58	0.259
DAS-28	3.3 (1.4)	3.8 (1.5)	<0.001
MD-HAQ	0.8 (0.6)	0.9 (0.6)	0.010
Biologic	37	34	0.502
DMARD	92	90	0.355
Prednisone	49	49	0.892
Hypertension	51	42	0.050
Diabetes	23	18	0.206
Cardiovascular disease	24	15	0.017
Cerebrovascular accident	3	6	0.102
Kidney problems	2	3	0.521
COPD	11	13	0.689
Any cancer	13	12	0.842

SD = Standard Deviation; BMI=Body Mass Index; RF=Rheumatoid Factor; CCP=Anti-Cyclic Citrullinated Peptide; DAS-28=Disease Activity Score-28; MD-HAQ=Multi-Dimensional Health Assessment Questionnaire; DMARD=Disease Modifying Anti-Rheumatic Drug

*
N=248 for respondents and N=145 for non-respondents

**
N=172 for respondents and N=97 for non-respondents

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Table 2

Characteristics of Dual Users versus Non-dual Users

Patient Characteristics	Dual Care Patient		p-value
	N=130	N=188	
	Yes mean (SD) or %	No mean (SD) or %	
Age (years)	71 (11)	68 (9)	0.001
65 years of age or older	56	34	<0.001
Male	92	93	0.608
Caucasian	92	89	0.377
Education (years)	14 (3)	13 (2)	0.021
Smoking status at questionnaire			
Current	10	19	0.057
Former	64	63	
Never	26	18	
Disease duration at questionnaire (years)	15 (11)	14 (10)	0.295
Co-morbidities			
Heart condition in past 6 months	19	7	0.002
Stroke within past 6 months	4	0	0.011
Cancer	24	14	0.038
Cataract	33	20	0.018
Any orthopedic procedure	28	14	0.002
DAS-28 at last visit	3.3 (1.4)	3.3 (1.5)	0.929
MD-HAQ at last visit	0.80 (0.55)	0.81 (0.62)	0.884

DAS-28=Disease Activity Score-28; MD-HAQ=Multi-Dimensional Health Assessment Questionnaire

Table 3

Health Care Utilization of Dual vs. Non-dual Users

Care Characteristics	Dual Use Status		p-value
	Yes (n=130) mean (SD) or %	No (n=188) mean (SD) or %	
Have a non-VA primary care doctor	65	0 (0)	-
Have a non-VA rheumatologist	14	0 (0)	-
Have a non-VA specialist	50	0 (0)	-
Specific non-VA specialist			
Allergist	1	0 (0)	-
Cardiologist	25	0 (0)	
Endocrinologist	1	0 (0)	
Gastroenterologist	3	0 (0)	
Hematologist/Oncologist	6	0 (0)	
Nephrologist/kidney	0	0 (0)	
Neurologist	2	0 (0)	
Orthopedist	9	0 (0)	
Pain Specialist	2	0 (0)	
Pulmonologist	6	0 (0)	
Visits to VA rheumatologist in the last 6 months	1.84 (1.02)	1.78 (0.92)	0.589
Visits to VA primary care in the last 6 months	1.74 (1.04)	1.68 (0.95)	0.688
Visits to private rheumatologist in the last 6 months	1.87 (1.10)	-	-
Visits to private primary care in the last 6 months	2.07 (1.23)	-	-
Any hospitalizations outside of the VA in the past 6 months	30 (25)	9 (5)	<0.001