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Did Access to Care Improve Since Passage of the Veterans Choice Act?

Differences Between Rural and Urban Veterans

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Background: The 2014 Veterans Choice Program aimed to improve care access for Veterans through expanded availability of community care (CC). Increased access to CC could particularly benefit rural Veterans, who often face obstacles in obtaining medical care at the Veterans Health Administration (VHA). However, whether Veterans Choice Program improved timely access to care for this vulnerable population is understudied.

Objectives: To examine wait times among rural and urban Veterans for 5 outpatient specialty care services representing the top requests for CC services among rural Veterans.

Research Design: Retrospective study using VHA and CC outpatient consult data from VHA's Corporate Data Warehouse in Fiscal Year (FY) 2015 (October 1, 2014 to September 30, 2015) and FY2018 (October 1, 2017 to September 30, 2018).

Subjects: All Veterans who received a new patient consult for physical therapy, cardiology, optometry, orthopedics, and/or dental services in VHA and/or CC.

Measures: Wait time, care setting (VHA/CC), rural/urban status, sociodemographics, and comorbidities.

Results: Our sample included 1,112,876 Veterans. Between FY2015 and FY2018, mean wait times decreased for all services for both rural and urban Veterans; declines were greatest in VHA (eg, mean optometry wait times for rural Veterans in VHA vs. CC declined 8.3 vs. 6.4 d, respectively, $P < 0.0001$). By FY2018, for both rural and urban Veterans, CC mean wait times for most services were longer than VHA wait times.

Conclusions: Timely care access for all Veterans improved between FY15 and FY18, particularly in VHA. As expansion of CC continues under the MISSION Act, more research is needed to evaluate quality of care across VHA and CC and what role, if any, wait times play.

Key Words: access to care, policy evaluation, rural health, Veterans

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The Veterans Access, Choice and Accountability Act of 2014 ("Choice") was passed in direct response to the "wait time scandal" of 2014, which involved excessive delays in care, and highlighted the urgent need for the Veterans Health Administration (VHA) to improve timely access to care,[1] especially for outpatient services.[2] The Choice Act established the Veterans Choice Program (VCP), which allowed VHA to purchase care from an expanded network of community providers for eligible Veterans who lived more than a 40-miles from the nearest VHA facility, were unable to obtain needed care at the VHA within 30 days, or who experienced specific hardships in accessing the VHA.[3] Since implementation of Choice in 2014, VHA's provision of care to Veterans through community providers [hereafter: community care (CC)] has increased rapidly. In Fiscal Year (FY) 2018, the number of Veterans authorized to use CC was 1.8 million, an increase from 1.3 million in FY2014.[4]

Increased access to CC has the potential to benefit rural Veterans in particular, who often face obstacles obtaining care at VHA due to greater geographic and distance barriers, hospital closings, and provider shortages.[5,6] For these reasons, rural Veterans have historically relied more heavily on non-VHA care than their urban counterparts.[7] To help address the unique needs of rural Veterans, VHA undertook several initiatives: the Office of Rural Health was established in 2006; Community-based Outpatient Clinics were implemented in rural areas; reimbursements were allotted to Veterans for travel to VHA facilities for care; and investments were made in telehealth services to rural Veterans.[8,9] Expansion of CC is another potential mechanism for improving access to care. However, because rural Veterans are more

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likely to live in health professional shortage areas, it is unclear how effective VCP will be in improving timely care access for this population.[10–12]

Few studies have examined the impact of VCP on timely access to care, and to our knowledge, none have specifically focused on the impact of VCP on care access for rural Veterans. Existing studies are generally limited by their focus on a single type of service (eg, mental health) and reliance on small, nonrandom samples.[11–14] Results from these studies are mixed; several qualitative studies found that Veterans who used CC for mental health services reported long wait times[12] and difficulty in scheduling appointments,[11,13] whereas another study found that most participants felt that VCP improved their access to services, despite complications in accessing care through VCP.[14] We could only find 1 study that examined the effect of VCP on Veterans' actual wait times; it found no improvement in the timeliness of colonoscopy among Veterans who accessed this service through CC.[15]

In this study, we evaluated wait times for outpatient specialty care services in VHA and CC for rural Veterans in FY2015 (the first year post-Choice) and in FY2018 (the last year of the study). Although our primary focus was on rural Veterans, we also analyzed wait times for urban Veterans in order to provide a frame of reference for our findings. We hypothesized that: (1) at baseline (FY2015), rural Veterans who used CC for outpatient services would experience longer wait times than rural Veterans who used VHA; and (2) by FY2018, wait times would decrease for both CC and VHA rural users but these declines would be greatest for CC users, as administrative processes and coordination of care improved between VHA and CC providers.

METHODS

Data Sources and Sample

This was a retrospective study using VHA and CC outpatient consult data (ie, approved requests for clinical services) obtained from several files located in the VHA's Corporate Data Warehouse during FY2015 (October 1, 2014 to September 30, 2015) and FY2018 (October 1, 2017 to September 30, 2018). Although the Corporate Data Warehouse contains both inpatient and outpatient administrative data, we used the Consults Table to identify Veterans who had outpatient consults only in the VHA and/or CC during the study period. We obtained sociodemographic information on Veterans from the SPatient files, Veterans' rurality status (rural/urban) from the annual VHA Planning Systems Group Geocoded Enrollee Files, and Veterans' Nosos risk scores from the VHA Health Economics Resource Center. The Nosos risk score was developed to characterize the disease burden of the Veteran population for the purpose of predicting expected total VHA costs.[16,17] Nosos risk scores are centered around a mean score of 1.

We selected 5 outpatient specialty services from a list provided by the VHA Office of Community Care of the top 10 most authorized requests for services for CC in FY2015 and FY2018 broken down by rurality status.[18] We chose those services that were in the top 10 for rural Veterans in both study years; these included physical therapy (PT), optometry, orthopedic, dental, and cardiology tests and procedures. To identify individual consults, we used VHA stop codes (identifiers that indicate the type of clinical encounter the Veteran received: eg, PT stop code #205) and free text searching to identify VHA and CC consults in the 5 services of interest.

Our sample included all Veterans who received a new patient consult for 1 or more of the 5 outpatient specialty services in VHA and/or CC in FY2015 and FY2018. We followed the recommended methodology for measuring VHA wait times,[19] which focuses on "new patients," defined as Veterans who have not had an encounter within the same stop code in the prior 24 months at the same VHA Medical Center.[20] Therefore, for both FY2015 and FY2018, we used the 2 previous FYs to identify new patients (eg, FY2013–FY2014 was used to identify patients for the FY2015 sample). An individual patient could be included up to 5 times in each FY (FY2015 and FY2018) (once for each service type), but this rarely occurred: 10% of Veterans had more than 1 consult in a FY and among these, the average was around 2 consults (0.001% had 5 consults). Because our main interest was on the effect of VCP on wait times, we focused on the change in wait times from baseline (FY2015, when the Choice Act was implemented) to the most recent period (FY2018).

Measures

Our primary outcome measure was wait time. Because requested appointment date was not available for CC visits, we defined wait time as the number of days from when a Veteran's primary care provider requested a consultation for the service to when the medical appointment for that consult took place. We identified 2 measures of wait time: (1) mean wait time and (2) the percentage of Veterans who had a wait time >30 days. We selected 30 days because of VHA's stated goal of reducing wait times to <30 days.[21] Because of the sensitivity of the means to large outliers, we excluded those consults that had wait times in the top 5% of the distribution for FY2015 and FY2018 combined. Across the 5 services, the 5% cut-off wait time values ranged from 82 to 121 days. In Supplemental Material, Supplemental Digital Content 1 (http://links.lww.com/MLR/C162), we show boxplots of wait times by service for all cases and the bottom 95% of cases and mean wait times by service with and without the top 5% in FY2015 and FY2018 (Table 1).

Two independent variables were of primary interest: Veterans' rurality status and setting of care (VHA vs. CC). For each study year, we classified a Veteran as urban or rural using the value of rurality that was closest to the end of the FY. The current Planning Systems Group system designates a Veteran as urban, rural, highly rural, or islander based on census block population density. We excluded islanders (their numbers were too small in each year) and collapsed the remaining classifications into a 2-category variable (rural/urban) due to the small number of highly rural Veterans (3.8% during the study period). We then created 4 user groups based on these 2 variables: "Rural CC," "Rural VHA," "Urban CC," and "Urban VHA." These categories are included as indicator variables (coded 0/1) in the multivariate models.

Additional variables in the models, identified in prior research as wait time determinants,[22] included age (coded continuously), sex (male/female), race/ethnicity (Black

TABLE 1. Veteran Characteristics Across Rural/Urban Strata and Care Setting in FY15*

Sample Sizes and Veteran Characteristics	Overall	Rural	Urban	Effect Size†	RCC‡	RVA§	Effect Size‖	UCC¶	UVA#	Effect Size‖
No. Veterans**	489,508	163,852	325,656		33,984	129,868		38,666	286,990	
No. new patient consult	537,174	178,841	358,333		36,725	142,116		41,882	316,451	
Age in FY15 [mean (SD)]	60.1 (14.87)	62.0 (13.89)	59.2 (15.25)	0.192	61.5 (13.94)	62.1 (13.88)	0.048	57.7 (15.06)	59.4 (15.26)	0.111
Nosos risk score [mean (SD)]	1.61 (2.08)	1.50 (1.94)	1.66 (2.15)	0.074	1.36 (1.74)	1.54 (1.99)	0.097	1.51 (1.94)	1.68 (2.17)	0.078
Sex = Males (%)	91	93	90	0.123	93	93	0.023	89	90	0.028
Priority group†† (%)										
1–2	47	46	47	0.022	50	45	0.101	55	46	0.185
3	20	21	20	0.024	21	21	0.008	19	20	0.03
4–6	33	33	33	0.003	29	34	0.116	26	34	0.176
Race/ethnicity (%)										
Black, non-Hispanic	20	9	26	0.444	9	9	0.021	21	27	0.133
Hispanic	7	3	9	0.26	3	3	0.008	12	9	0.115
Other	3	3	3	0.039	4	2	0.087	4	3	0.033
White, non-Hispanic	65	81	57	0.524	80	81	0.006	59	57	0.025
Unknown	5	4	5	0.008	4	4	0.015	4	5	0.041
Marital status (%)										
Divorced/separated	29	26	31	0.100	25	26	0.032	29	31	0.039
Married	52	59	49	0.211	61	59	0.034	54	48	0.106
Single	12	8	14	0.209	8	8	0.013	12	15	0.069
Widowed	6	6	5	0.032	5	6	0.03	4	5	0.055
Unknown	1	1	1	0.013	1	1	0.004	1	1	0.004

*VHA Fiscal Year (FY) October 1 to September 30.
†Rural versus urban.
‡RCC represents rural Veterans using Community Care.
§RVA represents rural Veterans using Veterans Health Affairs.
‖CC versus VA.
¶UCC represents urban Veterans using Community Care.
#UVA represents urban Veterans using Veterans Health Affairs.
**If a Veteran used more than 1 of the 5 study services in a year, we assigned the Veteran to the site of care of the service used first.
††Priority group 1: Veterans with VHA-rated service-connected disabilities 50% or more disabling; Veterans determined by VHA to be unemployable due to service-connected conditions; Priority group 2: Veterans with VHA-rated service-connected disabilities 30% or 40% disabling; Priority group 3: Veterans who are Former Prisoners of War (POWs); Veterans awarded a Purple Heart medal; Veterans whose discharge was for a disability that was incurred or aggravated in the line of duty; Veterans with VHA-rated service-connected disabilities 10% or 20% disabling; Veterans awarded "benefits for individuals disabled by treatment or vocational rehabilitation"; Veterans awarded the Medal of Honor (MOH); Priority group 4: Veterans who receive aid and attendance or housebound benefits from VHA; Veterans who are considered "catastrophically disabled" by VHA; Priority group 5: nonservice-connected Veterans and noncompensable service-connected Veterans rated 0% disabled by VHA with annual income below VHA's adjusted income limits; Veterans receiving VHA pension benefits; Veterans eligible for Medicaid programs; Priority group 6: compensable 0% service-connected Veterans; Veterans exposed to ionizing radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki; Project 112/SHAD participants; Veterans who served in Vietnam; Veterans of the Persian Gulf War; Veterans who served on active duty at Camp Lejeune for at least 30 days (US Department of Veterans Affairs 2017). We grouped priority groups based on the following: groups 1–2 (more service-connected), group 3 (a mix of eligibility criteria), and groups 4–6 (not service-connected).

non-Hispanic, White non-Hispanic, Hispanic, other, unknown), marital status (married, divorced/separated, single, widowed, unknown), FY (FY2015 = 0, FY2018 = 1), concurrent Nosos risk score (calculated from a model estimated to predict costs that occurred during the same year as the data used for modeling) and "priority level." Priority level indicates a Veteran's priority group for enrollment in VHA based on specific eligibility criteria, including severity of service-connected disabilities and income level. Veterans in the lowest priority levels have the highest enrollment priority and are exempt from copayments, whereas those in the highest groups have required copayments.[16] Eligibility levels were grouped into 3 categories: 1–2, 3, and 4–6. Eligibility levels 7–8 were excluded because there was no one in our cohort in these priority levels.

Analysis

We ran descriptive statistics to characterize the sociodemographic and clinical characteristics of our sample and to describe wait times for each of the 5 services in FY2015 and FY2018. We compared rural and urban users overall, as well as CC and VHA users, stratified by rurality status. Because our sample sizes were large, very small differences in means were often statistically significant, making *P*-values of little use in interpreting results. Therefore, in most cases, we report effect sizes (ESs, measured by Cohen *d* statistic),[23] which do not depend upon sample sizes. ESs below 0.10 are often interpreted as indicating negligible differences between groups[24]; ESs of 0.20 and 0.50 are considered small and medium, respectively.[23]

For each type of service, we ran a linear regression model predicting mean wait time and a logistic regression model predicting the log odds of waiting > 30 days. Each model included the 4 user groups (rural CC, rural VHA, urban CC, urban VHA) and the interaction of these variables with FY2018. The models also included the independent variables described in the prior section, plus the interaction of race/ethnicity with FY2018, which was included to evaluate

changes in the effect of race/ethnicity over time. For each of the 4 user groups in each time period, we calculated adjusted means. These are the predicted mean wait times for a "hypothetical" person in the group who had the average value for each of the covariates in the model (technically, these are called estimated population marginal means or least squares means). We used bootstrapping (with 1000 bootstrap samples) to estimate *P*-values when comparing the magnitude of decline from FY2015 to FY2018 in one group to another. For these analyses, we report *P*-values rather than ESs because we did not have individual-level observations on changes in wait times between FY2015 and FY2018. We used SAS/STAT Version 9.4 for all analyses.[25]

RESULTS

Descriptive Results

Study Population Characteristics

In FY2015, our sample included 489,508 Veterans, representing 537,174 consults in at least 1 of the 5 outpatient specialty care services (Table 1). In FY2018, our sample included 623,368 Veterans, representing 687,822 consults (Supplemental Material, Supplemental Digital Content 1, http://links.lww.com/MLR/C162, Table 2). Among our cohort, in FY2015, 20.7% of rural Veterans used CC compared with 11.9% of urban Veterans; in FY2018, these percentages increased to 30.1% and 18.9%, respectively. In FY15, rural Veterans, compared with their urban counterparts, were more likely to be older (mean age 62.0 vs. 59.2), White (80.8% vs. 57.4%), and married (59.3% vs. 48.9%). In general, within the rural and urban strata, there were only negligible differences in the characteristics of Veterans who used CC versus VHA with one exception: urban CC users were more likely to be in priority groups 1–2 compared with urban VHA users and less likely to be in groups 4–6 (although the ESs 0.185 and 0.176, respectively, were relatively small). In FY2018, the patterns were similar to the FY2015 sample.

Multivariate Results

Adjusted Mean Wait Times

We compared rural and urban users overall and, stratifying by rurality, CC and VHA users. As the unadjusted and adjusted mean wait times were similar, we present results for the adjusted means only (Table 2; see Supplemental Material, Table 3, for the unadjusted means, Supplemental Digital Content 1, http://links.lww.com/MLR/C162). In FY2015, across all services, there were negligible, or at most small, differences in mean wait times between rural and urban users overall, as well as between CC and VHA users stratified by rurality. However, there were sizeable wait time differences across types of specialty services. For example, rural Veterans waited on average 28 days for PT and 43 days for optometry services, in both CC and VHA.

Average wait times decreased between FY2015 and FY2018 for all services for both rural and urban Veterans except for dental services received through CC, which increased minimally (by < 1 d) for rural Veterans. With the exception of optometry, the declines were statistically significantly greater for urban compared with rural Veterans ($P < 0.05$ for PT and $P < 0.001$ for the other services). Within the rural and urban strata, with the exception of dental services for rural Veterans, both CC and VHA users experienced wait time declines. However, declines were significantly greater for VHA compared with CC users ($P < 0.001$), except for cardiology services ($P = 0.19$). By FY2018, for both rural and urban Veterans, mean CC wait times for select services were longer than mean VHA wait times, usually by 2–3 days, although for orthopedics, by 4–5 days.

Adjusted Probably of Waiting More Than 30 Days for Services

Similar to average wait times, the unadjusted and adjusted odds of waiting > 30 days were nearly identical; only the adjusted results are presented here (Table 2; see Supplemental Material, Table 3, for the unadjusted results, Supplemental Digital Content 1, http://links.lww.com/MLR/C162). In FY2015, there were negligible differences between rural and urban Veterans in the probability of waiting > 30 days for care received. Within the rural and urban strata, there were also negligible to small differences between CC and VHA users, although there were large differences across types of services.

The adjusted probability of waiting > 30 days declined between FY2015 and FY2018 for both rural and urban Veterans and across care settings. For PT, cardiology, orthopedics, and dental services, the declines were statistically significantly greater for urban than rural Veterans ($P = 0.04$ for PT, $P > 0.001$ for other services). Within rurality strata, the declines were statistically significantly greater for VHA compared with CC with the exception of cardiology for rural Veterans. By FY2018, for both rural and urban Veterans, the probability of waiting over 30 days for select services was greater in CC than VHA, although even the largest ESs were < 0.20. However, some of these differences are worth noting. For example, for orthopedics, the probability of a rural Veteran waiting > 30 days was 0.48 for CC users and 0.42 for VA users; comparable probabilities for urban users were 0.47 and 0.38, respectively.

Multivariate Results: The Effect of Race/Ethnicity on Waiting Times

The largest coefficients in each regression model related to race/ethnicity (see Table 3 for linear regression results and Supplemental Material, Table 4, for logistic regression results, Supplemental Digital Content 1, http://links.lww.com/MLR/C162). To illustrate, Black and Hispanic Veterans, who were otherwise similar to White Veterans, had mean wait times for PT that were 3.6 and 3.7 days longer, respectively, than that of White Veterans; for optometry, their wait times were 4.4 and 1.4 days longer than compared with those of White Veterans. The one exception to this pattern was that the mean wait time for orthopedic services for Hispanic Veterans was 2.24 days shorter than for White Veterans. In FY2018, the effect of Black compared with White race was statistically significantly smaller ($P < 0.0001$) for all services except for dental; the effect of Hispanic was statistically significantly

TABLE 2. Adjusted Consult Wait Time Measures Across Rural/Urban Strata, Service Types, and Care Settings During FY15† and FY18†

Number of Cases and Service Type	Overall	Rural	Urban	Effect Sizes and *P* Values	RCC‡	RVA§	Effect Sizes and *P* Values	UCC‖	UVA¶	Effect Sizes and *P* Values
No. cases										
FY15 number of new patient consult	536,995	178,785	358,210		36,704	142,081		41,846	316,364	
FY18 number of new patient consult	691,475	233,271	458,204		69,951	163,320		86,711	371,493	
FY15 number of Veterans	489,334	163,789	325,536		35,669	131,471		41,037	289,119	
FY18 number of Veterans	617,323	209,008	408,315		66,880	149,930		83,549	337,084	
	Overall	Rural	Urban	Effect Size#	RCC	Mean	Effect Size††	UCC	UVA	Effect Size††
Mean waiting time and effect size (or *P*)										
FY15										
Service type										
Physical therapy	29.52	28.14	30.41	0.121	28.53	28.01	0.028	28.94	30.62	0.089
Cardiology	26.47	26.47	26.90	–0.001	28.20	26.20	0.101	28.46	26.77	0.085
Optometry	42.87	43.02	42.61	0.001	42.94	43.07	0.005	41.85	42.84	0.037
Orthopedic	35.47	35.59	35.51	0.000	35.25	35.67	0.018	37.35	35.26	0.088
Dental	26.21	26.91	27.02	0.000	27.25	26.57	0.030	25.99	27.70	–0.071
FY18										
Service type										
Physical therapy	26.05	24.48	26.58	0.007	26.32	23.85	0.148	28.84	26.26	0.148
Cardiology	24.87	25.34	24.41	0.003	27.33	25.03	0.121	27.55	24.15	0.183
Optometry	35.36	35.46	34.92	0.001	36.57	34.81	0.069	36.90	34.32	0.102
Orthopedic	29	29.89	28.35	0.004	33.00	29.14	0.194	32.87	27.73	0.262
Dental	25.83	26.08	24.77	0.002	27.34	24.77	0.110	25.90	24.01	0.082
				P‡‡			*P*			*P*
FY15–FY18 difference (% decline FY15–FY18)										
Service type										
Physical therapy	0.12	3.67 (13)	3.83 (13)	0.046	2.21 (8)	4.17 (15)	<0.001***	0.1 (0)	4.36 (14)	<0.001***
Cardiology	0.06	1.13 (4.28)	2.48 (9)	<0.001***	0.87 (3)	1.17 (4)	0.186	0.91 (3)	2.61 (10)	<0.001***
Optometry	0.18	7.57 (18)	7.69 (18)	0.1	6.36 (15)	8.27 (19)	<0.001***	4.95 (12)	8.52 (20)	<0.001***
Orthopedic	0.18	5.7 (16)	7.16 (20)	<0.001***	2.25 (6)	6.53 (18)	<0.001*,**	4.48 (12)	7.53 (21)	<0.001***
Dental	0.01	0.83 (3)	2.25 (8)	<0.001***	–0.1 (0)	1.8 (7)	<0.001***	0.09 (0)	3.69 (13)	<0.001***
	Overall	Rural	Urban	Effect Size#	RCC	RVA	Effect Size††	UCC	UVA	Effect Size#
Probability of waiting >30 d and effect size (or *P*)										
FY15										
Service type										
Physical therapy	0.42	0.38	0.43	0.105	0.39	0.38	0.015	0.39	0.44	0.091
Cardiology	0.36	0.35	0.37	0.027	0.39	0.35	0.087	0.40	0.36	0.069
Optometry	0.6	0.61	0.60	0.015	0.60	0.61	0.011	0.59	0.60	0.027
Orthopedic	0.51	0.52	0.51	0.021	0.51	0.52	0.020	0.55	0.50	0.101
Dental	0.34	0.34	0.34	0.001	0.34	0.34	0.008	0.32	0.36	0.069
FY18										
Service type										
Physical therapy	0.34	0.30	0.36	0.123	0.32	0.30	0.041	0.37	0.36	0.033
Cardiology	0.32	0.34	0.31	0.049	0.37	0.33	0.075	0.37	0.31	0.125
Optometry	0.49	0.49	0.48	0.031	0.51	0.48	0.063	0.53	0.46	0.139
Orthopedic	0.41	0.42	0.39	0.065	0.48	0.41	0.130	0.47	0.38	0.189
Dental	0.3	0.32	0.29	0.062	0.33	0.30	0.065	0.30	0.28	0.030

FY15–FY18 difference (% decline FY15–FY18)										
Service type				*P*			*P*			*P*
Physical therapy	0.07	0.08 (21)	0.07 (17)	0.04*	0.07 (18)	0.08 (21)	0.05*	0.02 (5)	0.08 (18)	< 0.001***
Cardiology	0.04	0.02 (5)	0.05 (15)	< 0.001***	0.02 (6)	0.02 (5)	0.29	0.03 (8)	0.06 (15)	0.006**
Optometry	0.11	0.11 (19)	0.12 (21)	0.03*	0.09 (15)	0.13 (21)	< 0.001***	0.06 (10)	0.14 (24)	< 0.001***
Orthopedic	0.11	0.1 (19)	0.12 (23)	< 0.001***	0.04 (7)	0.11 (21)	< 0.001***	0.08 (15)	0.12 (24)	< 0.001***
Dental	0.04	0.02 (7)	0.05 (15)	< 0.001***	0.01 (3)	0.04 (11)	0.02	0.03 (8)	0.07 (20)	< 0.001***

†VHA Fiscal Year (FY) October 1 to September 30.
‡RCC represents rural Veterans using Community Care.
§RVA represents rural Veterans using Veterans Health Affairs.
‖UCC represents urban Veterans using Community Care.
¶UVA represents urban Veterans using Veterans Health Affairs.
#Rural versus urban.
††CC versus VA.
‡‡*P*-value reported for (FY15 probability–FY18 probability).
*$P \leq 0.05$.
**$P < 0.01$.
***$P < 0.001$.

smaller for PT and cardiology, but increased for orthopedics ($P < 0.0001$), the only service in which Hispanics had a shorter waiting time than Whites in FY15.

DISCUSSION

Improving access to timely care has been a high priority for the VHA since excessively long delays in care were reported in 2014. Recent implementation of the VHA Maintaining Systems and Strengthening Integrated Outside Networks Act of 2018 ("MISSION") indicates that this currently remains a high priority.[26] MISSION expanded the eligibility criteria under which Veterans can use CC, a change that is expected to increase Veterans' use of CC.[27] With continued emphasis in VHA on expanding care to the community, it is critical that the effects of VCP on timely access to care, particularly for vulnerable groups such as rural Veterans, are carefully evaluated.

Accordingly, we examined wait times of rural and urban Veterans in FY2015 and FY2018 for referrals to 5 outpatient specialty care services frequently performed in CC and VHA. There are several important findings from this study. First, contrary to our hypothesis that, at baseline, rural Veterans who used CC would experience longer wait times than rural Veterans who used VHA, we observed relatively minimal differences in wait times across care settings for both rural and urban Veterans in FY2015. Our hypothesis was based on existing literature describing increased barriers to care among rural Veterans.[6,28] However, we did find differences in wait times across types of specialty services; for example, optometry and orthopedics had longer mean wait times than the other specialty services (for both rural and urban Veterans and across settings).

Second, wait time reductions from FY2015 to FY1208 were greater in VHA than CC. This too was contrary to our hypothesis. Although CC wait times declined, VHA wait times decreased even more. Although we cannot explain why VHA waits time declined more than those in CC, it is possible that increased use of CC services freed up capacity for providing more timely care in the VHA; it is also possible that VHA investments during this period, including increased staffing in VHA, enabled more timely care. It will be important for VHA to understand the factors associated with these trends to inform future investments aimed at improving care access.

Third, despite reduced wait times, many rural Veterans still waited over 30 days for services in both care settings. For example, in FY2018, 37% of rural Veterans waited over 30 days for cardiology appointments in CC; 41% of rural Veterans waited over 30 days for orthopedic services in VHA. These findings are particularly concerning, given evidence that longer wait times are associated with poorer health outcomes.[29,30] For these reasons, it is essential that future studies identify the sources of excessive long wait times for services both in CC and VHA, and the ways in which wait times can be reduced.

Fourth, our finding that Black and Hispanic Veterans were more likely to have, on average, longer wait times than their White counterparts is consistent with other studies that have found racial disparities in access.[31–36] However, we did find that

TABLE 3. Linear Regression Predicting Mean Consult Wait Times for 5 Types of Services in FY15† and FY18†

Sample Sizes and Veteran Characteristics	Type of Service				
	Physical Therapy	**Cardiology**	**Optometry**	**Orthopedic**	**Dental**
No. Veterans	382,542	229,880	260,286	245,728	82,469
No. new patient consults	392,750	234,892	264,906	251,971	83,951
	Days‡ (SE)	Days (SE)	Days (SE)	Days (SE)	Days (SE)
RCC§	33.50 (0.22)***	27.75 (0.42)***	39.91 (0.37)***	35.30 (0.38)***	35.03 (0.56)***
RVA‖	32.98 (0.17)***	25.75 (0.27)***	40.05 (0.32)***	35.72 (0.25)***	34.35 (0.52)***
UCC¶	33.90 (0.23)***	28.00 (0.44)***	38.82 (0.36)***	37.40 (0.35)***	33.77 (0.49)***
UVA#	35.59 (0.15)***	26.32 (0.26)***	39.81 (0.31)***	35.31 (0.23)***	35.48 (0.47)***
RCC × FY18	−1.93 (0.21)***	−0.38 (0.40)	−5.66 (0.30)***	−2.12 (0.36)***	0.52 (0.44)
RVA × FY18	−3.88 (0.12)***	−0.68 (0.15)***	−7.57 (0.26)***	−6.40 (0.16)***	−1.37 (0.41)**
UCC × FY18	0.19 (0.22)	−0.42 (0.42)	−4.25 (0.29)***	−4.35 (0.34)***	0.34 (0.36)
UVA × FY18	−4.07 (0.09)***	−2.13 (0.13)***	−7.82 (0.19)***	−7.40 (0.13)***	−3.26 (0.30)***
Race/ethnicity (reference = White, non-Hispanic)					
Black, non-Hispanic	3.62 (0.12)***	1.96 (0.18)***	4.37 (0.17)***	4.98 (0.17)***	2.31 (0.33)***
Hispanic	3.70 (0.19)***	2.81 (0.26)***	1.41 (0.26)***	−2.24 (0.27)***	2.04 (0.49)***
Other	1.85 (0.27)***	0.18 (0.41)	1.59 (0.38)***	−0.69 (0.40)	3.03 (0.80)**
Unknown	1.13 (0.22)***	−0.52 (0.31)	0.14 (0.32)	−0.89 (0.33)*	1.73 (0.62)*
Race/ethnicity × FY18 (reference = White, non-Hispanic)					
Black, non-Hispanic × FY18	−0.94 (0.15)***	−1.78 (0.22)***	−3.89 (0.30)***	−1.87 (0.22)***	−0.59 (0.41)
Hispanic × FY18	−1.21 (0.24)***	−2.89 (0.33)***	0.68 (0.42)	1.41 (0.34)***	−1.40 (0.62)
Other × FY18	0.39 (0.34)	0.09 (0.51)	−1.56 (0.62)	2.28 (0.51)***	−2.44 (0.97)
Unknown × FY18	−0.35 (0.29)	0.84 (0.40)	0.54 (0.50)	1.50 (0.43)**	−2.12 (0.78)*
Male (reference = female)	−1.17 (0.09)***	−0.39 (0.16)	−1.04 (0.20)***	−0.32 (0.14)	−0.76 (0.27)*
Age (FY15)	−0.07 (0.00)***	0.02 (0.00)***	0.07 (0.00)***	0.00 (0.00)	−0.08 (0.01)***
Nosos risk score	−0.54 (0.02)***	−0.63 (0.02)***	−0.37 (0.03)***	−0.52 (0.02)***	−0.86 (0.03)***
Priority group†† (reference = 1–2)					
Priority 3	−0.84 (0.07)***	−0.44 (0.11)***	−0.84 (0.14)***	−0.71 (0.11)***	−5.26 (0.28)***
Priority 4–6	−0.79 (0.07)***	−0.27 (0.09)*	−0.91 (0.12)***	−1.37 (0.10)***	−7.10 (0.23)***
Marital status (reference = single)					
Divorced/separated	0.00 (0.10)	0.24 (0.14)	0.12 (0.18)	0.55 (0.14)***	−0.26 (0.26)
Married	−0.13 (0.09)	0.35 (0.14)	−0.30 (0.18)	0.85 (0.13)***	0.66 (0.26)
Widowed	−0.70 (0.16)***	−0.12 (0.21)	−0.47 (0.28)	0.14 (0.24)	0.05 (0.47)
Unknown	0.13 (0.28)	−0.72 (0.44)	−0.09 (0.58)	1.90 (0.43)***	1.55 (0.81)

†VHA Fiscal Year (FY) October 1 to September 30.
‡Days refers to the coefficient associated with the variable in column 1.
§RCC represents rural Veterans using Community Care.
‖RVA represents rural Veterans using Veterans Health Affairs.
¶UCC represents urban Veterans using Community Care.
#UVA represents urban Veterans using Veterans Health Affairs.
††Priority Group 1: Veterans with VHA-rated service-connected disabilities 50% or more disabling; Veterans determined by VHA to be unemployable due to service-connected conditions; Priority group 2: Veterans with VHA-rated service-connected disabilities 30% or 40% disabling; Priority group 3: Veterans who are Former Prisoners of War (POWs); Veterans awarded a Purple Heart medal; Veterans whose discharge was for a disability that was incurred or aggravated in the line of duty; Veterans with VHA-rated service-connected disabilities 10% or 20% disabling; Veterans awarded "benefits for individuals disabled by treatment or vocational rehabilitation"; Veterans awarded the Medal of Honor (MOH); Priority group 4: Veterans who receive aid and attendance or housebound benefits from VHA; Veterans who are considered "catastrophically disabled" by VHA; Priority group 5: nonservice-connected Veterans and noncompensable service-connected Veterans rated 0% disabled by VHA with annual income below VHA's adjusted income limits; Veterans receiving VHA pension benefits; Veterans eligible for Medicaid programs; Priority group 6: compensable 0% service-connected Veterans; Veterans exposed to ionizing radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki; Project 112/SHAD participants; Veterans who served in Vietnam; Veterans of the Persian Gulf War; Veterans who served on active duty at Camp Lejeune for at least 30 days (US Department of Veterans Affairs 2017). We grouped priority groups based on the following: groups 1–2 (more service-connected), group 3 (a mix of eligibility criteria), and groups 4–6 (not service-connected).
*$P < 0.01$.
**$P < 0.001$.
***$P < 0.0001$.

in most services the differences declined between FY2015 and FY2018. Although the reasons for longer wait times among Black and Hispanic Veterans are beyond the scope of this study, the answer is likely based on several factors, including evidence that the likelihood of residing in provider shortage areas is higher for Black and Hispanic individuals.[37] As the VHA continues to invest in achieving health equity, it should continue to monitor and explore the reason for these trends.

Our study has several limitations. First, because we used an objective measure of wait time, we were unable to account for Veterans' preferences or capture their perceptions of access.[38] Nonetheless, our measure provided accurate comparisons of wait times across VHA and CC settings. Second, we only focused on a subset of outpatient specialty services. We selected these services because they represented the most heavily used services in CC among rural Veterans. The consistency of our findings across the 5 services suggests that there may be similar trends among other outpatient specialty services, although generalizations are at best tentative. Third, Nosos risk scores only incorporate Fee data and

not CC data from the Program Integrity Tool, so the risk scores for Veterans who used CC may be underestimated.

Finally, we did not account for facility-level or regional-level variation in our analyses, which are important for targeting quality improvements efforts. However, by examining national trends, we were able to provide an overall perspective on wait times across both settings of care which is important for understanding the overall impact of VCP on timely access to care.

In summary, we found that VCP was associated with improved timely access to care for rural Veterans between FY2015 and FY2018, particularly in VHA. We also found that rural Veterans experienced essentially comparable wait times for similar services and settings as their urban counterparts, although for some service types, wait times were relatively long. As expansion of CC continues under MISSION, it will be critical for VHA to target areas for improvement, such as identifying the sources of delays in wait times over 30 days as well as exploring the reasons for wait time disparities by race/ethnicity. Lastly, while our study suggests that VCP has improved care access for rural Veterans, more research is needed to evaluate the quality of care across VHA and CC and what role, if any, wait times play in patient experience and health outcomes.

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