# Medicaid Expansion and Veterans' Reliance on the VA for Depression Care

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**Background:** In 2001, before the Affordable Care Act (ACA), some states expanded Medicaid coverage to include an array of mental health services, changing veterans' reliance on US Department of Veterans Affairs (VA) services.

**Methods:** Using Medicaid and VA administrative data from 1999 to 2006, we used a difference-in-difference design to calculate shifts in veterans' reliance on the VA for depression care in New York and Arizona after the 2 states expanded Medicaid coverage to adults in 2001. Demographically matched, neighbor states Pennsylvania and New Mexico/Nevada were used as paired comparisons, respectively. Fractional logit was used to capture the distribution of inpatient and outpatient depression care utilization between the VA and Medicaid, while ordered logit and negative binomial regressions were applied to model Medicaid-VA dual users and per capita

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*Fed Pract*. 2022;39(11). Published online November 11. doi:10.12788/fp.0330

he US Department of Veterans Affairs (VA) is the largest integrated health care system in the United States, providing care for more than 9 million veterans.<sup>1</sup> With veterans experiencing mental health conditions like posttraumatic stress disorder (PTSD), substance use disorders, and other serious mental illnesses (SMI) at higher rates compared with the general population, the VA plays an important role in the provision of mental health services.<sup>2-5</sup> Since the implementation of its Mental Health Strategic Plan in 2004, the VA has overseen the development of a wide array of mental health programs geared toward the complex needs of veterans. Research has demonstrated VA care outperforming Medicaid-reimbursed services in terms of the percentage of veterans filling antidepressants for at least 12 weeks after initiation of treatment for major depressive disorder (MDD), as well as posthospitalization follow-up.6

Eligible veterans enrolled in the VA often also seek non-VA care. Medicaid covers nearly 10% of all nonelderly veterans, and of these veterans, 39% rely solely on Medicaid for health care access.<sup>7</sup> Today, Medicaid is the largest payer for mental health services in the US, providing coverage for approximately 27% of Americans who have SMI and helping fulfill unmet mental health needs.<sup>8,9</sup> Understanding which of these systems veter-

utilization of total depression care services, respectively. **Results:** Medicaid expansion was associated with a 9.50 percentage point (pp) decrease (95% CI, -14.61 to -4.38) in reliance on the VA for inpatient depression care among service-connected veterans and a 13.37 pp decrease (95% CI, -21.12 to -5.61) among incomeeligible veterans. For outpatient depression care, VA reliance decreased by 2.19 pp (95% CI, -3.46 to -0.93) among incomeeligible veterans. Changes among service-connected veterans were nonsignificant (-0.60 pp; 95% CI, -1.40 to 0.21). **Conclusions:** After Medicaid expansion, veterans shifted

depression care away from the VA, with effects varying by health care setting, income- vs service-related eligibility, and state of residence. Issues of overall cost, care coordination, and clinical outcomes deserve further study in the ACA era of Medicaid expansions.

ans choose to use, and under which circumstances, is essential in guiding the allocation of limited health care resources.<sup>10</sup>

Beyond Medicaid, alternatives to VA care may include TRICARE, Medicare, Indian Health Services, and employer-based or selfpurchased private insurance. While these options potentially increase convenience, choice, and access to health care practitioners (HCPs) and services not available at local VA systems, cross-system utilization with poor integration may cause care coordination and continuity problems, such as medication mismanagement and opioid overdose, unnecessary duplicate utilization, and possible increased mortality.<sup>11-15</sup> As recent national legislative changes, such as the Patient Protection and Affordable Care Act (ACA), Veterans Access, Choice and Accountability Act, and the VA MISSION Act, continue to shift the health care landscape for veterans, questions surrounding how veterans are changing their health care use become significant.<sup>16,17</sup>

Here, we approach the impacts of Medicaid expansion on veterans' reliance on the VA for mental health services with a unique lens. We leverage a difference-in-difference design to study 2 historical Medicaid expansions in Arizona (AZ) and New York (NY), which extended eligibility to childless adults in 2001. Prior Medicaid dual-eligible mental health research investigated reliance shifts

# TABLE 1 Descriptive Statistics of Patients Seeking Depression Care Before and After 2001 Medicaid Expansion<sup>a</sup>

	Nonexpansion states		Expansion states	
Variables	Pre-expansion	Postexpansion	Pre-expansion	Postexpansion
Inpatient, No.	663	2670	1170	4487
Male sex, %	88.4	88.3	91.6	89.8
Non-White race, %	20.2	22.5	30.4	26.4
Eligible for VA by service connection, %	53.4	57.7	46.8	51.5
Eligible for VA by income, %	42.1	36.6	46.4	41.0
Age, mean (SD), y	46.5 (8.7)	48.4 (8.7)	46.5 (8.1)	48.3 (8.6)
VA Relative Risk Score, mean (SD)	1.1 (0.6)	1.2 (0.7)	1.2 (0.7)	1.3 (0.8)
Distance to nearest VA primary clinic, mean (SD), mi	8.7 (10.9)	8.9 (11.1)	6.1 (7.2)	6.6 (8.0)
Distance to nearest VAMC, mean (SD), mi	23.4 (30.8)	23.8 (34.1)	16.9 (24.1)	18.4 (26.5)
Outpatient, No.	13,243	53,556	18,524	76,826
Male sex, %	88.0	87.5	89.8	88.6
Non-White race, %	17.8	17.6	21.7	20.9
Eligible for VA by service connection, %	47.1	49.7	43.2	46.2
Eligible for VA by income, %	45.1	39.5	46.7	41.9
Age, mean (SD), y	48.5 (8.8)	50.5 (9.0)	48.5 (8.7)	50.0 (9.0)
VA Relative Risk Score, mean (SD)	0.8 (0.6)	0.9 (0.7)	0.9 (0.6)	1.0 (0.7)
Distance to nearest VA primary clinic, mean (SD), mi	9.1 (10.5)	9.6 (10.8)	7.3 (8.8)	7.7 (8.7)
Distance to nearest VAMC, mean (SD), mi	27.6 (35.6)	29.6 (39.6)	20.4 (27.5)	22.4 (29.6)

Abbreviations: VA, US Department of Veterans Affairs; VAMC, VA medical center.

<sup>a</sup>Veterans aged 18-64 years, seeking care for depression from 1999 to 2006, and VA-enrolled while residing in New York, Pennsylvania, Arizona, New Mexico, and Nevada; using person-year as the unit of analysis, the No. captures total potential cases in each category and does not include missing cases for each variable.

during the immediate postenrollment year in a subset of veterans newly enrolled in Medicaid.<sup>18</sup> However, this study took place in a period of relative policy stability. In contrast, we investigate the potential effects of a broad policy shift by analyzing state-level changes in veterans' reliance over 6 years after a statewide Medicaid expansion. We match expansion states with demographically similar nonexpansion states to account for unobserved trends and confounding effects. Prior studies have used this method to evaluate post-Medicaid expansion mortality changes and changes in veteran dual enrollment and hospitalizations.<sup>10,19</sup> While a study of ACA Medicaid expansion states would be ideal, Medicaid data from most states were only available through 2014 at the time of this analysis. Our study offers a quasi-experimental framework leveraging longitudinal data that can be applied as more post-ACA data become available.

Given the rising incidence of suicide among veterans, understanding careseeking behaviors for depression among veterans is important as it is the most common psychiatric condition found in those who died by suicide.<sup>20,21</sup> Furthermore, depression may be useful as a clinical proxy for mental health policy impacts, given that the Patient Health Questionnaire-9 (PHQ-9) screening tool is well validated and increasingly research accessible, and it is a chronic condition responsive to both well-managed pharmacologic treatment and psychotherapeutic interventions.<sup>22,23</sup>

In this study, we quantify the change in care-seeking behavior for depression among veterans after Medicaid expansion, using a quasi-experimental design. We hypothesize that new access to Medicaid would be associated with a shift away from using VA services for depression. Given the incomedependent eligibility requirements of Medicaid, we also hypothesize that veterans who qualified for VA coverage due to low income, determined by a regional means test (Priority group 5, "income-eligible"), would be more likely to shift care compared with those whose serviced-connected conditions related to their military service (Priority groups 1-4, "service-connected") provide VA access.

# **METHODS**

To investigate the relative changes in veterans' reliance on the VA for depression care after the 2001 NY and AZ Medicaid expansions We used a retrospective, difference-in-difference analysis. Our comparison pairings, based



# FIGURE 1 Predicted VA Inpatient Reliance Changes by Year<sup>a</sup>

Abbreviation: VA, US Department of Veterans Affairs.

The dependent variables are the difference after 1999 between Medicaid expansion and nonexpansion states in the proportion of depression-related VA inpatient services. Medicaid expansion occurred in 2001 and 2002 in Arizona and 2001 in New York. Error bars represent 95% Cls.

<sup>a</sup>Service-connected, VA Priority groups 1-4 veterans (medical condition associated with military service); income-eligible, Priority group 5 veterans (low-income households).

on prior demographic analyses were as follows: NY with Pennsylvania (PA); AZ with New Mexico and Nevada (NM/NV).<sup>19</sup> The time frame of our analysis was 1999 to 2006, with pre- and postexpansion periods defined as 1999 to 2000 and 2001 to 2006, respectively.

# Data

We included veterans aged 18 to 64 years, seeking care for depression from 1999 to 2006, who were also VA-enrolled and residing in our states of interest. We counted veterans as enrolled in Medicaid if they were enrolled at least 1 month in a given year.

Using similar methods like those used in prior studies, we selected patients with encounters documenting depression as the primary outpatient or inpatient diagnosis using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes: 296.2x for a single episode of major depressive disorder, 296.3x for a recurrent episode of MDD, 300.4 for dysthymia, and 311.0 for depression not otherwise specified.<sup>18,24</sup> We used data from the Medicaid Analytic eXtract files (MAX) for Medicaid data and the VA Corporate Data Warehouse (CDW) for VA data. We chose 1999 as the first study year because it was the earliest year MAX data were available.

Our final sample included 1833 person-

years pre-expansion and 7157 postexpansion in our inpatient analysis, as well as 31,767 person-years pre-expansion and 130,382 postexpansion in our outpatient analysis.

# **Outcomes and Variables**

Our primary outcomes were comparative shifts in VA reliance between expansion and nonexpansion states after Medicaid expansion for both inpatient and outpatient depression care. For each year of study, we calculated a veteran's VA reliance by aggregating the number of days with depressionrelated encounters at the VA and dividing by the total number of days with a VA or Medicaid depression-related encounters for the year. To provide context to these shifts in VA reliance, we further analyzed the changes in the proportion of annual VA-Medicaid dual users and annual per capita utilization of depression care across the VA and Medicaid. Changes in the proportion would indicate a relative shift in usage between the VA and Medicaid. Annual per capita changes demonstrate changes in the volume of usage. Understanding how proportion and volume interact is critical to understanding likely ramifications for resource management and cost. For example, a relative shift in the proportion of care toward Medicaid might be explained by a substitution effect of increased Medicaid usage and lower VA per capita usage, or an additive (or complementary) effect, with more Medicaid services coming on top of the current VA services.

We conducted subanalyses by incomeeligible and service-connected veterans and adjusted our models for age, non-White race, sex, distances to the nearest inpatient and outpatient VA facilities, and VA Relative Risk Score, which is a measure of disease burden and clinical complexity validated specifically for veterans.<sup>25</sup>

# **Statistical Analysis**

We used fractional logistic regression to model the adjusted effect of Medicaid expansion on VA reliance for depression care. In parallel, we leveraged ordered logit regression and negative binomial regression models to examine the proportion of VA-Medicaid dual users and the per capita utilization of Medicaid and VA depression care, respectively. To estimate the difference-indifference effects, we used the interaction term of 2 categorical variables—expansion vs nonexpansion states and pre- vs postexpansion status—as the independent variable. We then calculated the average marginal effects with 95% CIs to estimate the differences in outcomes between expansion and nonexpansion states from pre- to postexpansion periods, as well as year-by-year shifts as a robustness check. We conducted these analyses using Stata MP, version 15.

This project was approved by the Baylor College of Medicine Institutional Review Board (IRB # H-40441) and the Michael E. Debakey Veterans Affairs Medical Center Research and Development Committee.

### RESULTS

Baseline and postexpansion characteristics for expansion and nonexpansion states are reported in Table 1. Except for non-White race, where the table shows an increase in nonexpansion to expansion states, these data indicate similar shifts in covariates from pre- to postexpansion periods, which supports the parallel trends assumption. Missing cases were less than 5% for all variables.

#### **VA Reliance**

Overall, we observed postexpansion decreases in VA reliance for depression care among expansion states compared with nonexpansion states (Table 2). For the inpatient analysis, Medicaid expansion was associated with a 9.50 percentage point (pp) relative decrease (95% CI, -14.62 to -4.38) in VA reliance for depression care among service-connected veterans and a 13.37 pp (95% CI, -21.12 to -5.61) decrease among income-eligible veterans. For the outpatient analysis, we found a small but statistically significant decrease in VA reliance for income-eligible veterans (-2.19 pp; 95% CI, -3.46 to -0.93) that was not observed for service-connected veterans (-0.60 pp; 95% CI, -1.40 to 0.21). Figure 1 shows adjusted annual changes in VA reliance among inpatient groups, while Figure 2 highlights outpatient groups. Note also that both the income-eligible and service-connected groups have similar trend lines from 1999 through 2001 when the ini-

## FIGURE 2 Predicted VA Outpatient Reliance Changes by Year<sup>a</sup>



Abbreviation: VA, US Department of Veterans Affairs.

The dependent variables are the difference after 1999 between Medicaid expansion and nonexpansion states in the proportion of depression-related VA inpatient services. Medicaid expansion occurred in 2001 and 2002 in Arizona and 2001 in New York. Error bars represent 95% Cls.

<sup>a</sup>Service-connected, VA Priority groups 1-4 veterans (medical condition associated with military service); income-eligible, Priority group 5 veterans (low-income households).

tial ound of Medicaid expansion happened, additional evidence supporting the parallel trends assumption.

At the state level, reliance on the VA for inpatient depression care in NY decreased by 13.53 pp (95% CI, -22.58 to -4.49) for income-eligible veterans and 16.67 pp (95% CI, -24.53 to -8.80) for service-connected veterans. No relative differences were observed in the outpatient comparisons for both income-eligible (-0.58 pp; 95% CI, -2.13 to 0.98) and service-connected (0.05 pp; 95% CI, -1.00 to 1.10) veterans. In AZ, Medicaid expansion was associated with decreased VA reliance for outpatient depression care among income-eligible veterans (-8.60 pp; 95% CI, -10.60 to -6.61), greater than that for service-connected veterans (-2.89 pp; 95% CI, -4.02 to -1.77). This decrease in VA reliance was significant in the inpatient context only for service-connected veterans (-4.55 pp; 95% CI, -8.14 to -0.97), not income-eligible veterans (-8.38 pp; 95% CI, -17.91 to 1.16).

By applying the aggregate pp changes toward the postexpansion number of visits across both expansion and nonexpansion states, we found that expansion of Medicaid across all our study states would have resulted in 996 fewer hospitalizations and 10,109 fewer outpatient visits for depression at VA in the postexpansion period vs if no

	Service-connected VA enrollees		Income-eligible VA enrollees		
Admission types	No.	Change (95% CI)	No.	Change, pp (95% CI)	
VA hospital, pp			· · · · · ·		
Overall	4380	-9.50ª (-14.62 to -4.38)	3393	-13.37ª (-21.12 to -5.61)	
NY-PA	2744	-16.67ª (-24.53 to -8.80)	2536	-13.53ª(-22.58 to -4.49)	
AZ-NM/NV	1636	-4.55ª (-8.14 to -0.97)	857	-8.38 (-17.91 to 1.16)	
VA outpatient, pp					
Overall	67,222	-0.60 (-1.40 to 0.21)	61,862	-2.19 <sup>a</sup> (-3.46 to -0.93)	
NY-PA	44,090	0.05 (-1.00 to 1.10)	44,799	-0.58 (-2.13 to 0.98)	
AZ-NM/NV	23,132	-2.89ª (-4.02 to -1.77)	17,063	-8.60ª (-10.60 to -6.61)	
Dual-use hospital. pp					
Overall	4380	0.97 <sup>a</sup> (0.46 to 1.48)	3393	0.64ª (0.35 to 0.94)	
NY-PA	2744	1.48 <sup>a</sup> (0.80 to 2.16)	2536	0.73ª (0.39 to 1.07)	
AZ-NM/NV	1636	0.70ª (0.03 to 1.38)	857	0.31 (-0.17 to 0.78)	
Dual-use outpatient, pp					
Overall	67,222	0.09 (-0.04 to 0.21)	61,862	0.16ª (0.03 to 0.29)	
NY-PA	44,090	0.01 (-0.16 to 0.17)	44,799	0.03 (-0.12 to 0.18)	
AZ-NM/NV	23,132	0.42ª (0.23 to 0.61)	17,063	0.83ª (0.59 to 1.07)	
Hospital admissions, per capita					
Overall	4380	0.00 (-0.18 to 0.18)	3393	0.08 (-0.12 to 0.27)	
NY-PA	2744	-0.01 (-0.25 to 0.23)	2536	0.10 (-0.12 to 0.32)	
AZ-NM/NV	1636	0.08 (-0.21 to 0.38)	857	-0.04 (-0.43 to 0.35)	
Outpatient visits, per capita					
Overall	67,222	-0.06 (-0.25 to 0.13)	61,862	-0.01 (-0.25 to 0.22)	
NY-PA	44,090	-0.25ª (-0.48 to -0.01)	44,799	-0.64ª (-0.93 to -0.35)	
AZ-NM/NV	23,132	0.62ª (0.32 to 0.91)	17,063	2.32ª (1.99 to 2.65)	

# TABLE 2 Veterans' Changes in Person-Year Depression Care Use Postexpansion

Abbreviations: AZ, Arizona; NM, New Mexico; NV, Nevada; NY, New York; PA, Pennsylvania; pp, percentage point; VA, US Department of Veterans Affairs.

<sup>a</sup>Change statistically distinct from zero effect at 95% Cl.

states had chosen to expand Medicaid.

#### **Dual Use/Per Capita Utilization**

Overall, Medicaid expansion was associated with greater dual use for inpatient depression care-a 0.97-pp (95% CI, 0.46 to 1.48) increase among service-connected veterans and a 0.64-pp (95% CI, 0.35 to 0.94) increase among income-eligible veterans. At the state level, NY similarly showed increases in dual use among both serviceconnected (1.48 pp; 95% CI, 0.80 to 2.16) and income-eligible veterans (0.73 pp; 95% CI, 0.39 to 1.07) after Medicaid expansion. However, dual use in AZ increased significantly only among service-connected veterans (0.70 pp; 95% CI, 0.03 to 1.38), not income-eligible veterans (0.31 pp; 95% CI, -0.17 to 0.78).

Among outpatient visits, Medicaid expansion was associated with increased dual use only for income-eligible veterans (0.16 pp; 95% CI, 0.03-0.29), and not

service-connected veterans (0.09 pp; 95% CI, -0.04 to 0.21). State-level analyses showed that Medicaid expansion in NY was not associated with changes in dual use for either service-connected (0.01 pp; 95% CI, -0.16 to 0.17) or income-eligible veterans (0.03 pp; 95% CI, -0.12 to 0.18), while expansion in AZ was associated with increases in dual use among both service-connected (0.42 pp; 95% CI, 0.23 to 0.61) and income-eligible veterans (0.83 pp; 95% CI, 0.59 to 1.07).

Concerning per capita utilization of depression care after Medicaid expansion, analyses showed no detectable changes for either inpatient or outpatient services, among both service-connected and income-eligible veterans. However, while this pattern held at the state level among hospitalizations, outpatient visit results showed divergent trends between AZ and NY. In NY, Medicaid expansion was associated with decreased per capita utilization of outpatient depression care among both service-connected (-0.25 visits annually; 95% CI, -0.48 to -0.01) and income-eligible veterans (-0.64 visits annually; 95% CI, -0.93 to -0.35). In AZ, Medicaid expansion was associated with increased per capita utilization of outpatient depression care among both service-connected (0.62 visits annually; 95% CI, 0.32-0.91) and income-eligible veterans (2.32 visits annually; 95% CI, 1.99-2.65).

# DISCUSSION

Our study quantified changes in depression-related health care utilization after Medicaid expansions in NY and AZ in 2001. Overall, the balance of evidence indicated that Medicaid expansion was associated with decreased reliance on the VA for depression-related services. There was an exception: income-eligible veterans in AZ did not shift their hospital care away from the VA in a statistically discernible way, although the point estimate was lower. More broadly, these findings concerning veterans' reliance varied not only in inpatient vs outpatient services and income- vs serviceconnected eligibility, but also in the statelevel contexts of veteran dual users and per capita utilization.

Given that the overall per capita utilization of depression care was unchanged from pre- to postexpansion periods, one might interpret the decreases in VA reliance and increases in Medicaid-VA dual users as a substitution effect from VA care to non-VA care. This could be plausible for hospitalizations where state-level analyses showed similarly stable levels of per capita utilization. However, state-level trends in our outpatient utilization analysis, especially with a substantial 2.32 pp increase in annual per capita visits among income-eligible veterans in AZ, leave open the possibility that in some cases veterans may be complementing VA care with Medicaid-reimbursed services.

The causes underlying these differences in reliance shifts between NY and AZ are likely also influenced by the policy contexts of their respective Medicaid expansions. For example, in 1999, NY passed Kendra's Law, which established a procedure for obtaining court orders for assisted outpatient mental health treatment for individuals deemed unlikely to survive safely in the community.<sup>26</sup> A reasonable inference is that there was less unfulfilled outpatient mental health need in NY under the existing accessibility provisioned by Kendra's Law. In addition, while both states extended coverage to childless adults under 100% of the Federal Poverty level (FPL), the AZ Medicaid expansion was via a voters' initiative and extended family coverage to 200% FPL vs 150% FPL for families in NY. Given that the AZ Medicaid expansion enjoyed both broader public participation and generosity in terms of eligibility, its uptake and therefore effect size may have been larger than in NY for nonacute outpatient care.

Our findings contribute to the growing body of literature surrounding the changes in health care utilization after Medicaid expansion, specifically for a newly dual-eligible population of veterans seeking mental health services for depression. While prior research concerning Medicare dual-enrolled veterans has shown high reliance on the VA for both mental health diagnoses and services, scholars have established the association of Medicaid enrollment with decreased VA reliance.27-29 Our analysis is the first to investigate state-level effects of Medicaid expansion on VA reliance for a single mental health condition using a natural experimental framework. We focus on a population that includes a large portion of veterans who are newly Medicaid-eligible due to a sweeping policy change and use demographically matched nonexpansion states to draw comparisons in VA reliance for depression care. Our findings of Medicaid expansion-associated decreases in VA reliance for depression care complement prior literature that describe Medicaid enrollment-associated decreases in VA reliance for overall mental health care.

#### Implications

From a systems-level perspective, the implications of shifting services away from the VA are complex and incompletely understood. The VA lacks interoperability with the electronic health records (EHRs) used by Medicaid clinicians. Consequently, significant issues of service duplication and incomplete clinical data exist for veterans seeking treatment outside of the VA system, posing health care quality and safety concerns.<sup>30</sup> On one hand, Medicaid

access is associated with increased health care utilization attributed to filling unmet needs for Medicare dual enrollees, as well as increased prescription filling for psychiatric medications.<sup>31,32</sup> Furthermore, the only randomized control trial of Medicaid expansion to date was associated with a 9-pp decrease in positive screening rates for depression among those who received access at around 2 years postexpansion.<sup>33</sup> On the other hand, the VA has developed a mental health system tailored to the particular needs of veterans, and health care practitioners at the VA have significantly greater rates of military cultural competency compared to those in nonmilitary settings (70%) vs 24% in the TRICARE network and 8% among those with no military or TRICARE affiliation).34 Compared to individuals seeking mental health services with private insurance plans, veterans were about twice as likely to receive appropriate treatment for schizophrenia and depression at the VA.<sup>35</sup> These documented strengths of VA mental health care may together help explain the small absolute number of visits that were associated with shifts away from VA overall after Medicaid expansion.

Finally, it is worth considering extrinsic factors that influence utilization among newly dual-eligible veterans. For example, hospitalizations are less likely to be planned than outpatient services, translating to a greater importance of proximity to a nearby medical facility than a veteran's preference of where to seek care. In the same vein, major VA medical centers are fewer and more distant on average than VA outpatient clinics, therefore reducing the advantage of a Medicaid-reimbursed outpatient clinic in terms of distance.36 These realities may partially explain the proportionally larger shifts away from the VA for hospitalizations compared to outpatient care for depression.

These shifts in utilization after Medicaid expansion may have important implications for VA policymakers. First, more study is needed to know which types of veterans are more likely to use Medicaid instead of VA services—or use both Medicaid and VA services. Our research indicates unsurprisingly that veterans without service-connected disability ratings and eligible for VA services due to low income are more likely to use at least some Medicaid services. Further understanding of who switches will be useful for the VA both tailoring its services to those who prefer VA and for reaching out to specific types of patients who might be better served by staying within the VA system. Finally, VA clinicians and administrators can prioritize improving care coordination for those who chose to use both Medicaid and VA services.

## **Limitations and Future Directions**

Our results should be interpreted within methodological and data limitations. With only 2 states in our sample, NY demonstrably skewed overall results, contributing 1.7 to 3 times more observations than AZ across subanalyses—a challenge also cited by Sommers and colleagues.<sup>19</sup> Our veteran groupings were also unable to distinguish those veterans classified as serviceconnected who may also have qualified by income-eligible criteria (which would tend to understate the size of results) and those veterans who gained and then lost Medicaid coverage in a given year. Our study also faces limitations in generalizability and establishing causality. First, we included only 2 historical state Medicaid expansions, compared with the 38 states and Washington, DC, that have now expanded Medicaid to date under the ACA. Just in the 2 states from our study, we noted significant heterogeneity in the shifts associated with Medicaid expansion, which makes extrapolating specific trends difficult. Differences in underlying health care resources, legislation, and other external factors may limit the applicability of Medicaid expansion in the era of the ACA, as well as the Veterans Choice and MISSION acts. Second, while we leveraged a differencein-difference analysis using demographically matched, neighboring comparison states, our findings are nevertheless drawn from observational data obviating causality. VA data for other sources of coverage such as private insurance are limited and not included in our study, and MAX datasets vary by quality across states, translating to potential gaps in our study cohort.<sup>28</sup> Finally, as in any study using diagnoses, visits addressing care for depression may have been missed if other diagnoses were noted as

primary (eg, VA clinicians carrying forward old diagnoses, like PTSD, on the problem list) or nondepression care visits may have been captured if a depression diagnosis was used by default.

Moving forward, our study demonstrates the potential for applying a natural experimental approach to studying dual-eligible veterans at the interface of Medicaid expansion. We focused on changes in VA reliance for the specific condition of depression and, in doing so, invite further inquiry into the impact of state mental health policy on outcomes more proximate to veterans' outcomes. Clinical indicators, such as rates of antidepressant filling, utilization and duration of psychotherapy, and PHQ-9 scores, can similarly be investigated by natural experimental design. While current limits of administrative data and the siloing of EHRs may pose barriers to some of these avenues of research, multidisciplinary methodologies and data querying innovations such as natural language processing algorithms for clinical notes hold exciting opportunities to bridge the gap between policy and clinical efficacy.

#### **CONCLUSIONS**

This study applied a difference-in-difference analysis and found that Medicaid expansion is associated with decreases in VA reliance for both inpatient and outpatient services for depression. As additional data are generated from the Medicaid expansions of the ACA, similarly robust methods should be applied to further explore the impacts associated with such policy shifts and open the door to a better understanding of implications at the clinical level.

#### Acknowledgments

We acknowledge the efforts of Janine Wong, who proofread and formatted the manuscript.

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#### Author disclosures

The authors report no financial conflicts of interest. This work was supported by the US Department of Veterans Affairs (VA), Veterans Health Administration, Office of Research and Development, and the Center for Innovations in Quality, Effectiveness and Safety (CIN-13-413). Support for VA/CMS data provided by the Department of Veterans Affairs, VA Health Services Research and Development Service, VA Information Resource Center (Project Numbers SDR 02-237 and 98-004). These institutions played no role in the design of the study or the analysis of the data.

#### Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of *Federal Practitioner*, Frontline Medical Communications Inc., the US Government, or any of its agencies.

#### Ethics and consent

Our protocol (#H-40441) was reviewed and approved by the Baylor College of Medicine Institutional Review Board, which waived the informed consent requirement. This study was approved by the Michael E. DeBakey Veterans Affairs Medical Center Research and Development Committee.

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