Who Receives Outpatient Monitoring During High-Risk Depression Treatment Periods?

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OBJECTIVES: To examine the intensity of monitoring received by important patient subgroups during high-risk periods (the 12 weeks after psychiatric hospitalization and after new antidepressant starts).

DESIGN: Retrospective secondary analysis of data from the Veterans Affairs (VA) National Registry for Depression using patients aged 65 and older receiving depression treatment from 1999 to 2004.

SETTING: VA healthcare system.

PARTICIPANTS: VA patients in depression treatment between April 1, 1999, and September 30, 2004, who had psychiatric inpatient stays (n = 73,137) or new antidepressant starts (n = 421,536).

MEASUREMENTS: The relationship between the number of outpatient visits for each group and patient characteristics in the 12-week period after psychiatric hospitalizations and antidepressant starts.

RESULTS: The characteristic associated with significantly lower rates of monitoring for both high-risk treatment periods was aged 65 and older. White race and living in the south or northeast were also associated with significantly lower rates of monitoring after new antidepressant starts and inpatient stays, respectively. Substance abuse disorders were associated with greater monitoring after both types of depression events but did not seem to interact with other patient characteristics in determining levels of monitoring.

CONCLUSION: VA patients who are older, white, and living in the south or northeast receive less-intensive monitoring during high-risk treatment periods for suicide. This is of concern, given that older patients appear to be at higher risk for suicide, particularly after inpatient stays, and may need particular attention during this time frame. Adapted interventions and proactive outreach may be needed that target this patient group. **J Am Geriatr Soc 58:908–913, 2010.**

Key words: disparities; mental health; disease management

In 2003, the Food and Drug Administration (FDA) warned clinicians that antidepressants might increase suicidality in children and adolescents and recommended close monitoring of patients newly started on these medications for symptoms of suicidal ideation. Although not proven to reduce suicides, the close monitoring of patients during high-risk periods is considered an important element of many clinical prevention efforts.[1] Guidelines vary tremendously in terms of recommendations for frequency and timing of follow-up visits for patients beginning antidepressants. The National Committee for Quality Assurance (NCQA) developed the most commonly used set of measures for improving depression treatment efficacy. In the NCQA Health Employer Data and Information Set (HEDIS), "optimal provider contact" is defined as a minimum of three follow-up visits for mental health care in the 12 weeks after a new antidepressant start.[2,3] The FDA has made a number of monitoring recommendations for periods after antidepressant starts, with the most stringent recommendation being seven visits in 12 weeks for children and adolescents.[4] One FDA advisory suggested that adults should be monitored similarly.[5]

Prior studies have consistently documented far less monitoring than the FDA or NCQA recommendations. A 2006 study noted that only 23% of patients received the FDA-recommended level of care at 12 weeks.[2] Another study[6] found that the visit frequency of patients with new episodes of depression treated with antidepressants did not change after the 2003 FDA advisory, with only approximately 40% of adults meeting HEDIS criteria at 12 weeks.

With limited resources, health systems may need to prioritize the "when" and the "who" of clinical monitoring efforts. In terms of the "when," research and clinical

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monitoring efforts have typically focused on the 12-week period after new antidepressant starts, but given finite resources, there are few data on which treatment periods should be considered highest risk and therefore prioritized for prevention efforts. A prior study established that Veterans Affairs (VA) patients in depression treatment have higher suicide rates during two readily identifiable treatment periods: the 12 weeks after psychiatric hospitalization and new antidepressant starts.[7] Risks were highest after inpatient hospitalization, with suicide rates greater than 568 per 100,000 person-years (approximately five times the overall base rate). After new antidepressant starts, suicide rates were 210 per 100,000 person-years. Smaller elevations in the suicide rate were found in the 12-week periods after other antidepressant starts (e.g., switches) or dose changes.

There is even more-limited information on "who" should or does receive the closest monitoring. Prior studies have noted that certain patient populations may be at higher risk for inadequate depression care (e.g., antidepressant dosage and duration adequacy), including younger age, African-American race, and exclusive primary care treatment.[8] In a prior study,[5] older patients had the same patterns in terms of periods of risk as in the overall sample. In addition, in other analyses performed in that study, older patients had significantly higher absolute rates than younger patients in the periods after psychiatric hospitalization; here, veterans aged 61 to 70 had a suicide rate per 100,000 person-years of 1,234.8, versus a rate of 673.5 for veterans 30 or under. However, to the authors' knowledge, there are few data on which patient subgroups receive more-intensive monitoring during high-risk periods for suicide. Given the advisability of close outpatient monitoring during these high-risk periods, whether certain patient characteristics (age, race, sex, marital status, living region, and comorbidities) were associated with disparities in monitoring was examined. A unique longitudinal VA data set with comprehensive diagnosis, utilization, and pharmacy data was used to examine rates of clinical monitoring during the two highest-risk treatment periods (12 weeks after inpatient stay and after new antidepressant start) in a comprehensive sample of VA patients in depression treatment between April 1, 1999, and September 30, 2004.

METHODS

Data for this study were obtained from the VA's National Registry for Depression (VARDEP), which was developed by the VA's Serious Mental Illness Treatment Research and Evaluation Center (SMITREC) in Ann Arbor, Michigan. The institutional review board of the VA Ann Arbor Health System approved this study.

Study Population

The study population consisted of patients in the National Registry for Depression between April 1, 1999, and September 30, 2004. Entry into the study required two depression diagnoses or a diagnosis of depression and an antidepressant fill. Depression diagnoses were identified using *International Classification of Diseases, Ninth Revision* (ICD-9) codes 296.2x, 296.3x, 296.90, 296.99, 298.0, 300.4, 311, 293.83, 301.12, 309.0, and 309.1. Patients with diagnoses of bipolar I or II, schizophrenia, or schizoaffective disorder during the study period were excluded. Patients were also excluded if they had unknown or missing race, were younger than 18, or had a missing value for region.

Treatment Events and High-Risk Cohorts

Because monitoring may be inherently different during the high-risk period after a psychiatric hospitalization than it is after a new antidepressant start, two separate cohorts were constructed based on the presence of these treatment events. The inpatient cohort comprised patients who had a psychiatric inpatient hospitalization, and observation days started from the discharge date. The new-start cohort comprised patients who had a new antidepressant start.

Psychiatric hospitalizations were defined as hospitalizations with a primary psychiatric discharge diagnosis of ICD-9 codes 290.x to 319.x or hospitalizations with bed section codes of 33, 38, 39, 70 to 74, 79, 84, or 89 to 94. A new antidepressant start was defined as an antidepressant medication fill within the VA system that occurred after a "clean period" of 6 months or longer without any antidepressant fills. As in prior studies, trazodone, mirtazapine, amitriptyline, and nortriptyline were considered to have been used as antidepressants rather than for other purposes only if the doses were 300, 15, 75, or 25 mg per day or greater, respectively.[9]

Observation Days for the 84-Day High-Risk Periods

Observation days for study analyses began on the date of patients' first new antidepressant treatment for the new-start cohort and on the day of discharge from the first psychiatric hospitalization for the inpatient cohort and continued for the next 84 days. Patients were excluded (36,928 patients from the new-start cohort and 21,268 from the inpatient cohort) if they had fewer than 84 days (12 weeks) of observation after the treatment event because of death (as indicated in the National Death Index) or the end of the study period (September 30, 2004). For each patient, only the first qualifying treatment event followed by at least 84 high-risk days was considered. Any nonpsychiatric or psychiatric inpatient hospitalization days that occurred during the high-risk period of 84 days were excluded from the number of high-risk days because only outpatient monitoring visits were of interest. Also, any days after a psychiatric hospitalization that occurred during the high-risk period were excluded from the number of high-risk days because postpsychiatric hospitalization days would indicate potential changes in risks. This meant that there were fewer than 84 high-risk days for those with any hospitalization within the 84 days after the index new antidepressant start for the new-start cohort or after the initial discharge date for the inpatient cohort.

Monitoring

Monitoring visits were defined using the VA-modified HEDIS criteria. A HEDIS visit is an outpatient visit that has a psychiatric Current Procedural Terminology (CPT) code or visits that have a mental health diagnosis with a nonpsychiatric CPT code. All monitoring visits occurring during high-risk days (the 12 weeks after an inpatient hospitaliza-

tion or new antidepressant start) were identified. Only one monitoring visit was counted on any given day, even if more than one visit was made.

Patient Characteristics

Patients were categorized into three age groups (18–44, 45–64, and ≥65) based on their age at the beginning of cohort entry. Each patient was classified into one of three racial categories (African American, white, or other), and patients' ethnicity was defined as Hispanic or non-Hispanic. Having a psychiatric comorbidity was defined as having at least one diagnosis of posttraumatic stress disorder, personality disorder, or anxiety disorder during the period from 12 months before cohort entry through the end of the study period. Similarly, a substance abuse comorbidity was defined as having at least one diagnosis of alcohol or other substance use in the same time frame. Having a medical comorbidity was defined as having at least one of the 20 Charlson medical comorbidities[10] during the 12 months before cohort entry.

Data Analyses

Descriptive statistics were computed for patient characteristics, using frequencies or means as appropriate. Analyses examining the relationships between the rate of monitoring during high-risk treatment periods and patient characteristics were completed separately for the two cohorts. Distribution of the number of visits during high-risk periods was examined graphically, and the rate of monitoring per 84 high-risk days was calculated as 84 × (total number of visits/total high-risk days) and reported as a summary measure. To assess the relationship between level of monitoring and patient characteristics, multiple regression models and negative binomial models were used. Negative binomial models were needed because the distribution of number of visits was skewed, with the majority of patients having just 0, 1, or 2 visits during high-risk periods but with some patients having many more visits. In the model, total number of visits was capped at 20 (i.e., patients with >20 visits were categorized as having 20 visits). The model also allowed adjustment for the total number of high-risk days, which was less than 84 days for those with a hospitalization within the 84 days after discharge from the index psychiatric hospitalization or after the new antidepressant start. The coefficients from a negative binomial model were exponentiated to reflect relative risks. For example, a coefficient of 0.5 for women would correspond to an increase in monitoring visits of about 65% (= exp(0.5)) in women relative to men when other variables were held constant. All analyses were performed using SAS version 9.2 (SAS Institute, Inc., Cary, NC).

In either cohort, patients who had at least one subsequent hospitalization during the 84-day high-risk period after entry into the cohort may have been monitored more intensively even before the hospitalization. In addition, a varying number of high-risk days across patients might bias the estimation of the strength of the relationship even with the use of a model adjusting for exposure. Therefore, the analyses were repeated after excluding patients who had one or more hospitalizations within the high-risk period to see if the results in the subsample with the full 84 high-risk days differed from those of the main analyses.

Analyses were also performed after stratifying according to substance abuse status and each of the three age groups (18–44, 45–64, and ≥65) and using location of index antidepressant start (primary care vs mental health). The latter was determined based upon the clinic visit that directly preceded the antidepressant fill.

RESULTS

Patient Sample

The characteristics of patients undergoing VA depression treatment during the study period (N = 798,217) are outlined in Table 1. The study sample comprised patients who had psychiatric inpatient stays (n = 73,137) or new antidepressant starts (n = 421,536). These groups had a mean age ± standard deviation of 52.2 ± 12.6 for the inpatient cohort and

Table 1. Patient Characteristics

Characteristic	n (%) Entire Cohort N = 798,217	Inpatient-Stay Cohort n = 73,137	New-Start Cohort n = 421,536
Sex			
Female	59,080 (7.4)	3,831 (5.2)	33,155 (7.9)
Male	739,137 (92.6)	69,306 (94.8)	388,381 (92.1)
Race			
African American	108,612 (13.6)	18,178 (24.9)	55,614 (13.2)
White	671,008 (84.1)	53,094 (72.6)	356,031 (84.5)
Other	18,597 (2.3)	1,865 (2.6)	9,891 (2.4)
Hispanic			
No	759,663 (95.2)	69,393 (94.9)	399,815 (94.9)
Yes	38,554 (4.8)	3,744 (5.1)	21,721 (5.2)
Age			
18–44	114,073 (14.3)	19,161 (26.2)	63,093 (15.0)
45–64	387,218 (48.5)	42,960 (58.7)	199,515 (47.3)
≥65	296,926 (37.2)	11,016 (15.1)	158,928 (37.7)
Marital status			
Married	437,768 (54.8)	25,999 (35.5)	233,945 (55.5)
Not married	356,885 (44.7)	47,025 (64.3)	185,801 (44.1)
Any substance abuse*			
No	620,569 (77.7)	24,841 (34.0)	335,435 (79.6)
Yes	177,648 (22.3)	48,296 (66.0)	86,101 (20.4)
Comorbid psychiatric diagnosis†			
No	451,906 (56.6)	29,923 (40.9)	249,046 (59.1)
Yes	346,312 (43.4)	43,214 (59.1)	172,490 (40.9)
Charlson medical comorbidity			
0	476,676 (59.7)	47,468 (64.9)	268,731 (63.8)
≥1	321,541 (40.3)	25,669 (35.1)	152,805 (36.3)
Region (location on entry into cohort)			
Northeast	161,781 (20.3)	15,793 (21.6)	81,768 (19.4)
Central	179,746 (22.5)	17,852 (24.4)	94,601 (22.4)
South	302,843 (37.9)	25,257 (34.5)	164,382 (39.0)
West	153,847 (19.3)	14,235 (19.5)	80,785 (19.2)

* Diagnosis of alcohol or other substance abuse 12 months before entry through end of study period.

† Diagnosis of posttraumatic stress disorder, personality disorder, or other anxiety disorder 12 months before entry through end of study period.

Table 2. Results from Negative Binomial Regression Models

	RR (95% Confidence Interval)†			
	Inpatient Cohort		New-Start Cohort	
Variable	All Patients n = 73,137	Full 84 Days* n = 58,129	All Patients n = 421,536	Full 84 Days* n = 403,153
Age (reference <45)				
45–64	1.08 (1.05–1.10)	1.12 (1.09–1.15)	0.95 (0.94–0.95)	0.95 (0.95–0.96)
≥65	0.71 (0.69–0.74)	0.75 (0.72–0.78)	0.75 (0.74–0.76)	0.75 (0.74–0.76)
Race (reference African American)				
White	0.93 (0.90–0.95)	0.92 (0.90–0.94)	0.83 (0.82–0.84)	0.84 (0.83–0.84)
Other	0.91 (0.85–0.97)	0.94 (0.88–1.01)	0.94 (0.92–0.95)	0.95 (0.93–0.97)
Hispanic	1.08, (1.03–1.13)	1.09 (1.04–1.14)	1.08 (1.07–1.10)	1.08 (1.07–1.10)
Female	1.13 (1.08–1.19)	1.17 (1.12–1.23)	1.00 (0.99–1.01)	1.01 (1.00–1.02)
Comorbid psychiatric diagnosis	1.57 (1.54–1.61)	1.57 (1.54–1.61)	1.55 (1.54–1.56)	1.55 (1.54–1.56)
Comorbid substance abuse	1.49 (1.45–1.52)	1.41 (1.37–1.44)	1.53 (1.52–1.55)	1.48 (1.47–1.49)
Medical comorbidity	0.91 (0.89–0.93)	0.91 (0.88–0.93)	0.97 (0.97–0.98)	0.96 (0.96–0.97)
Married	1.02 (1.00–1.04)	1.08 (1.05–1.11)	0.92 (0.91–0.92)	0.92 (0.92–0.93)
Region (reference midwest)				
South	0.77 (0.75–0.79)	0.78 (0.76–0.80)	0.88 (0.87–0.89)	0.89 (0.88–0.89)
Northeast	0.80 (0.78–0.82)	0.83 (0.81–0.86)	1.02 (1.01–1.03)	1.03 (1.02–1.04)
West	0.85 (0.83–0.88)	0.88 (0.85–0.91)	1.11 (1.10–1.12)	1.12 (1.11–1.13)

*Includes those with no subsequent hospitalizations within the 84-day high-risk period.
†Relative risk (RR) refers to the likelihood of receiving outpatient follow-up; a RR of <1 indicates that a particular group was less likely to receive follow-up than the reference group.

59.6 ± 14.4 for the new-start cohort and were predominantly male (95% and 92%, respectively). A higher percentage of inpatients were African American, younger, and unmarried and had substance abuse and psychiatric comorbidity.

Monitoring After Psychiatric Inpatient Stays

The number of visits after a psychiatric inpatient stay was highly skewed. Approximately 4% of patients had more than 20 visits during the high-risk period, although the median number of visits during this 84-day period was 2. The mean visit rate during the high-risk period was 4.56 visits (95% confidence interval (CI) = 4.55–4.58), a rate that differed significantly according to patient characteristics (Table 2).

The patient characteristic associated with significantly lower rates of monitoring for the postinpatient period was aged 65 and older (relative risk (RR) = 0.71, 95% CI = 0.69–0.74, relative to <45). Substance abuse disorders (RR = 1.49, 95% CI = 1.45–1.52) and having a psychiatric comorbidity (RR = 1.57, 95% CI = 1.54–1.61) were associated with higher monitoring rates after psychiatric hospitalizations. Monitoring visits varied greatly according to region, with those living in the south (RR = 0.77, 95% CI = 0.75–0.79) and northeast (RR = 0.80, 95% CI = 0.78–0.82) being monitored significantly less than those in the midwest (reference) region.

Monitoring After New Antidepressant Starts

The number of visits after new antidepressant starts was also highly skewed, with 0.46% having at least 20 visits, although the median number of visits was 1. The mean monitoring visit rate was 2.03 per 84 days (95% CI = 2.02–2.04) in the new-start cohort. Examining the new-start cohort, it was found that 23.9% of patients met the suggested NCQA recommendations for three or more visits during the 84-day period. Only 4.7% of patients met the FDA monitoring recommendation of seven or more visits. Characteristics associated with significantly lower rates of monitoring included aged 65 and older (RR = 0.75, 95% CI = 0.74–0.76) and white race (RR = 0.83, 95% CI = 0.82–0.84). Substance abuse disorders (RR = 1.53, 95% CI = 1.52–1.55) and having a psychiatric comorbidity (RR = 1.55, 95% CI = 1.54–1.56) were associated with higher rates of monitoring. Unlike in the inpatient cohort, monitoring did not vary significantly according to region.

Sensitivity Analyses

When the analyses were repeated after excluding those who had at least one subsequent hospitalization within the 84-day high-risk period, the relationships between patient characteristics and rate of monitoring remained nearly identical to those in the main analyses. A surprisingly large percent, i.e., 20.5% (n = 15,008), of the inpatient cohort had a subsequent rehospitalization during the high-risk period, whereas only 4.4% (n = 18,383) of new-start cohort had a hospitalization during the high-risk period.

To explore whether some of the monitoring patterns seen with regard to sex and race differed with age and substance abuse comorbidities, analyses were also done after stratifying according to substance abuse status and each of the three age groups (18–44, 45–64, and ≥65). In these analyses, characteristics associated with lower rates of monitoring were similar to the overall analyses.

Analyses were also performed using location of the index antidepressant start (mental health (MH); primary care (PC)), controlling for covariates, including substance abuse and psychiatric comorbidity, as well as demographic characteristics. Here it was found that, overall, MH patients were more likely to be monitored than PC patients in all three age groups, with a RR of MH versus PC of 1.68 ($P<.001$) for younger than 45, 1.88 ($P<.001$) for age 45 to 64, and 1.74 ($P<.001$) for aged 65 and older. It was also found that the age effects for older patients seen in the main analyses held regardless of location of the index visit. Specifically, older ($\geq$65) patients were less likely to be monitored than younger (<45) patients (RR = 0.86, $P<.001$, when index start was in PC, RR = 0.90, $P<.001$, when index start was in MH).

DISCUSSION

A unique longitudinal VA data set with comprehensive diagnosis, utilization, and pharmacy data was used to examine rates of clinical monitoring during the two highest-risk treatment periods (12 weeks after inpatient stay and after new antidepressant start) in a comprehensive sample of VA patients in depression treatment. Characteristics associated with significantly lower rates of monitoring included older age, white race, and living in the south or northeast. Older age has been associated with higher risks of suicide after psychiatric hospitalization.[5]

The results indicating significantly less depression monitoring for older patients are troubling but perhaps not surprising. In terms of new antidepressant starts, most older adults with depression are identified by their primary care physicians and treated as part of their overall medical care.[11] Multiple prior studies in the 1990s indicated that depression was underdiagnosed and undertreated in older adults.[12–14] Although there is ample evidence that antidepressant therapy can effectively ameliorate symptoms of later-life depression,[15–17] a number of factors or confounds create complexity in its overall management.[18] Patient factors, such as medical illness and neuropsychiatric comorbidity, may interact with provider factors to make treatment more complex. Even in the inpatient cohort in this study, most of whom would be expected to have psychiatric outpatient follow-up after hospitalization, the rates of monitoring were significantly lower than in younger adult patients. Factors such as comorbidity and functional impairment, as well as provider scheduling decisions, patient preferences, and transportation problems, may have played a role in preventing older patients from returning to the clinic as often as their younger counterparts.

Although the FDA meta-analysis did not show greater risks when older adults were randomized to an antidepressant rather than a placebo, the monitoring recommendation did not appear to be amended for older adults (i.e., the FDA made no new recommendation regarding a lower visit frequency for this population). However, providers may have noted the FDA meta-analysis results and not felt as much need to follow older adults as closely. This would perhaps stem from concern over the risks of suicide ensuing from depression medication itself rather than absolute suicide rates. Prior work[5] showed that, in clinical settings, these periods are very high risk for older adults, probably because of the illness severity that prompted the medication initiation or change rather than a medication effect per se.

During the period of this study, the VA had mandated annual depression screening. In its depression guidelines, it recommended regular follow-up for new depression episodes. It also emphasized following HEDIS guidelines for follow-up after psychiatric hospitalization and documenting outpatient visits in the first 7 days after discharge and in the first month after discharge. Aside from mandated annual screening, the guideline recommendations and follow-up recommendations were similar to those that other health systems use, although they may have been more rigorously monitored and emphasized in the VA. More recently (after this study period), the work outlined in a prior study[5] was widely disseminated in VA settings. Subsequently, more-intensive monitoring has been implemented for post-hospitalization periods, probably in part because of the documentation of high suicide risks during this period.

Given these results demonstrating that older adults receive less-intensive monitoring during high-risk periods, these patients may require adapted interventions to obtain the follow-up for depression care that they require. The VA has recently initiated home-based primary care programs for medically ill and older veterans. Routinely including depression care as part of these programs could enhance monitoring efforts for patients who may find it difficult to return to the clinic for more-frequent outpatient visits. Health systems serving large numbers of older patients may need to consider guidelines and follow-up measures specific to older adults during high-risk treatment periods.

Somewhat less expected were the results for African-American patients indicating that they had significantly more monitoring visits than white patients after new antidepressant starts. These findings could not be explained by increased care due to substance use comorbidities in the exploratory analyses stratified by substance abuse diagnosis. Prior studies have shown that minorities have significantly lower rates of mood disorder diagnoses,[19] may be less likely to receive guideline-concordant antidepressant treatment[20] or to fill prescriptions for antidepressant medications than whites,[21] and may prefer counseling to medications.[22] However, the results of the present study are similar to an earlier analysis in which no racial differences were found in healthcare usage for mood disorders in older patients diagnosed with depression in the VA system.[23] Additionally, other studies have found that African Americans are more likely than whites to receive an adequate course of psychotherapy in VA[24] settings. The findings of the current study support the idea that the VA may be doing a good job reaching out to racial minority patient groups who have been traditionally underserved with depression care.

Limitations

This article reports significantly lower monitoring rates for older than younger patients during high-risk treatment periods (after antidepressant starts and hospitalization); higher suicide rates have previously been reported in older than younger patients in this cohort during the posthospital period. However, in this article, the observational data were not used to directly assess the relationship between lower rates of monitoring and suicide risks in older adults. To do

so would require highly complex analyses, given the small number of completed suicides (suicide is a low base rate event) and salient issues of treatment selection in clinical settings. In clinical settings, treatments are not assigned at random, and patients with more-severe mental health problems often have more-frequent visits and are more likely to commit suicide, resulting in potentially spurious associations between high monitoring rates and suicide. Thus, even though the mental health literature, governmental organizations, and clinical practice guidelines routinely suggest higher levels of monitoring for higher risk populations, it may be that greater monitoring would not result in reduction in suicide risks in older patients.

The study has a number of other limitations. Consistent with the demographic characteristics of the VA patient population, the study cohort was primarily male, and thus the results may not be generalizable to other clinical populations. Additionally, antidepressant fills and hospitalizations within the VA were relied upon to characterize high-risk periods. Some patients may have used mental health services outside of the VA system, although prior reports indicate that only a minority of VA mental health users receive care in other health systems.[25,26] Older adults, in particular, may often exclusively use the VA because of generous drug benefits. It is also possible, given the VA's monitoring efforts, that depressed older patients during the time of the study may have been followed somewhat more closely in the VA than in other settings.

CONCLUSIONS

Characteristics associated with significantly lower rates of monitoring in two different high-risk periods for patients in depression treatment include older age, white race, and living in the south or northeast. Older adults may be more in jeopardy for inadequate monitoring during high-risk periods; these patients may require adapted interventions to obtain the depression care follow-up that they require. Health systems serving large numbers of elderly patients may need to consider additional guidelines and follow-up measures specific to older adults during high-risk treatment periods. In addition, further studies are needed to better understand why follow-up rates, particularly after hospitalization, are lower for older adults.

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