



Quality of Care for PTSD and Depression in the Military Health System

Phase I Report

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Preface

The U.S. Department of Defense (DoD) strives to maintain a physically and psychologically healthy, mission-ready force, and the care provided by the Military Health System (MHS) is critical to meeting this goal. Given the rates of posttraumatic stress disorder (PTSD) and depression among U.S. service members, attention has been directed to ensuring the quality and availability of programs and services targeting these and other psychological health (PH) conditions. Understanding the current quality of care for PTSD and depression is an important step toward future efforts to improve care across the MHS.

To help determine whether the service members with PTSD and/or depression are receiving evidence-based care and whether there are disparities in care quality by branch of service, geographic region, and service member characteristics (e.g., gender, age, pay grade, race/ethnicity, deployment history), DoD's Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) asked the RAND Corporation to conduct a review of the administrative data and medical records of service members diagnosed with PTSD and/or depression and to recommend areas on which the MHS could focus its efforts to continuously improve the quality of care provided to all service members.

This report should be of interest to MHS personnel who provide care for service members with PTSD and/or depression. It should also be useful to those responsible for monitoring the quality of that care and developing evidence-based quality measures to improve care for service members and individuals with PTSD or depression in other health systems.

This research was sponsored by DCoE and conducted within the Forces and Resources Policy Center of the RAND National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense Intelligence Community.

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Summary

There is a commitment at the highest level of government to provide mental health and substance abuse treatment services for service members and their families now and in the future (Obama, 2012). Several reports have highlighted the need for close monitoring of the quality of care provided for psychological health (PH) conditions in military populations (Hoge, Auchterlonie, and Milliken, 2006; Institute of Medicine, 2013; Institute of Medicine, 2014b; Tanielian and Jaycox, 2008). In response to the recent MHS review report (Department of Defense, 2014a), then Defense Secretary Chuck Hagel (U.S. Secretary of Defense, 2014) called for military treatment facilities (MTFs) to create action plans for performance improvement, and called for more transparency in providing patients, providers, and policymakers with information about quality and safety performance of the MHS.

The Military Health System (MHS) serves approximately 9.6 million beneficiaries and provides physical and PH care worldwide to active-component service members, Reserve and National Guard members, and retirees, as well as their families, survivors, and some former spouses. The MHS provides care directly through MTFs (i.e., direct care), with care being supplemented for beneficiaries by civilian providers through purchased care. MHS PH programs and services focus on prevention, diagnosis, and treatment for all service members, and each service offers additional training, services, and other support programs to help improve resilience and force readiness.

The U.S. Department of Defense (DoD) strives to maintain a physically and psychologically healthy, mission-ready force, and the MHS is critical to meeting this goal. Given the increases in rates of posttraumatic stress disorder (PTSD) and depression among U.S. service members, attention has been directed to ensuring the quality and availability of programs and services targeting these and other conditions. Understanding the current status of care for PTSD and depression is an important step toward future efforts to improve care. DoD asked the RAND Corporation to (1) provide a descriptive baseline assessment of the extent to which providers in the MHS implement care consistent with clinical practice guidelines (CPGs) for PTSD and depression and (2) examine the relationship between guideline-concordant care and clinical outcomes for these conditions.

This report describes the characteristics of active-component service members who received care for PTSD or depression through the MHS and assesses the quality of care received using quality measures derived from administrative data. We focus on active-component service members to increase the likelihood that the care they received was provided or paid for by the MHS, rather than other sources of health care. Members of the National Guard and Reserve components, retirees, and family members were not included in these analyses. In a subsequent report, we will present the results from quality measures that incorporate data from medical record review, which will focus only on care provided at MTFs (i.e., direct care). In addition, we plan to describe the results of analyses to examine the link between guideline-concordant care and outcomes, analyses that could not be included in this report due to lack of available data.

Measuring adherence to CPGs using quality measures can establish a baseline assessment of care against which future improvements can be compared. This process can also identify potential areas for quality improvement and can provide support for continuous improvement initiatives focused on the quality of PH care provided to service members. It was important to establish a baseline assessment of care because providers' adherence to the recommendations of CPGs is currently unknown for much of the care for psychological conditions in the MHS. Furthermore, there is no MHS-wide system in place to routinely assess the quality of care provided for PTSD and depression or to determine whether the care is having a positive effect on service members' outcomes. It should be noted that the diagnoses used for depression were not limited to major depressive disorder (MDD), which is the focus of the CPG. We used a more inclusive set of diagnoses (e.g., dysthymia, depressive disorder, not elsewhere classified) to align with several existing quality measures for depression. This more inclusive approach was based on the specifications of existing quality measures for depression, including those targeting MDD, which are not restricted to MDD diagnostic codes, and on field test findings indicating that some cases of MDD may be coded with non-MDD codes (National Quality Forum [NQF], 2014). Our approach increases the likelihood that patients with MDD and associated diagnoses are not missed and that quality measure results are comparable to existing specifications.

Selecting Quality Measures for PTSD and Depression Care

Quality measures, also called performance measures, provide a way to measure how well health care is being delivered. Quality measures are applied by operationalizing aspects of care recommended by CPGs using administrative data, medical records, clinical registries, patient or clinician surveys, and other data sources. Such measures provide information about the health care system and highlight areas in which providers can take action to make health care safer and more equitable (National Quality Forum, 2013b). Quality measures usually incorporate operationally defined numera-

tors and denominators, and scores are typically presented as the percentage of eligible patients who received the recommended care (e.g., percentage of patients who receive timely outpatient follow-up after inpatient hospitalization).

Based on earlier work conducted by RAND, we selected six quality measures for PTSD and six quality measures for depression as the focus of this report. These measures are described briefly below (Table S.1), with detailed technical specifications

Table S.1
Quality Measures for Patients with PTSD and Patients with Depression

PTSD	Depression ^a
Medication Management	
Percentage of PTSD patients with a newly prescribed SSRI/SNRI medication for ≥ 60 days (PTSD-T5)	Percentage of depression patients with a newly prescribed antidepressant medication for <ul style="list-style-type: none"> • 12 weeks (Depression-T5a)^b • six months (Depression-T5b)
Percentage of PTSD patients newly prescribed an SSRI/SNRI with follow-up visit within 30 days (PTSD-T6)	Percentage of depression patients newly prescribed an antidepressant with a follow-up visit within 30 days (Depression-T6)
Psychotherapy	
Percentage of PTSD patients in a new treatment episode who received any psychotherapy within four months (PTSD-T8)	Percentage of depression patients in a new treatment episode who receive any psychotherapy within four months (Depression-T8)
Receipt of Care	
Percentage of PTSD patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks (PTSD-T9)	Percentage of depression patients in a new treatment episode with four psychotherapy visits or two evaluation and management visits within the first eight weeks (Depression-T9)
Follow-up After Hospitalization	
Percentage of psychiatric inpatient hospital discharges among patients with PTSD with follow-up <ul style="list-style-type: none"> • Within seven days of discharge (PTSD-T15a)^b • Within 30 days of discharge (PTSD-T15b)^b 	Percentage of psychiatric inpatient hospital discharges among patients with depression with follow-up <ul style="list-style-type: none"> • Within seven days of discharge (Depression-T15a) • Within 30 days of discharge (Depression-T15b)
Inpatient Utilization	
Number of psychiatric discharges per 1,000 patients with PTSD (PTSD-RU1)	Number of psychiatric discharges per 1,000 patients with depression (Depression-RU1)

NOTES: Codes in parentheses provide measure numbers for ease of reference to measure specifications in Appendixes A and B. SSRI = selective serotonin reuptake inhibitor. SNRI = serotonin and norepinephrine reuptake inhibitor.

^a The definition of depression for cohort entry includes more diagnostic codes than only those for MDD. See Appendix B for descriptions of the codes used to define the study cohort and the eligible populations for each quality measure (which vary by measure).

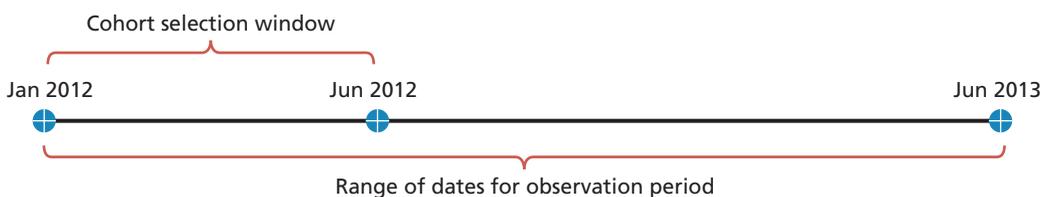
^b NQF-endorsed measure.

provided in Appendixes A and B. These measures were selected from a larger set of candidate measures because they can be computed using only administrative data. Within each set of measures, five measures assess care described in the U.S. Department of Veterans Affairs (VA)/DoD CPGs, including adequate medication trial and medication management, receipt of any psychotherapy, receipt of a minimal number of visits associated with a first-line treatment (either psychotherapy or medication management), and follow-up after hospitalization. The sixth measure in each set provides information on the rate of utilization of inpatient care, which is important as a descriptive measure that allows comparing by MTF and monitoring over time.

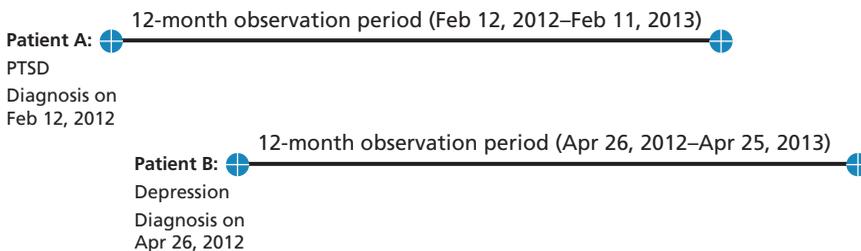
Methods and Data Sources

We used administrative data that contained records on all inpatient and outpatient health care encounters for MHS beneficiaries through MTF (i.e., direct care) or by civilian providers paid for by TRICARE (i.e., purchased care). To describe and evaluate care for PTSD and depression, we identified a cohort of patients who received care for PTSD and a cohort who received care for depression. Service members were eligible for the PTSD or depression cohort if they had at least one outpatient visit or inpatient stay with a primary or secondary diagnosis for PTSD or depression, respectively, during the first six months of 2012 (January 1–June 30, 2012) in either direct care or purchased care (Figure S.1). When the quality measures were applied, they were applied to the smaller subgroups of patients defined by the individual measure

Figure S.1
Timing of Cohort Entry and Computation of 12-Month Observation Period



Two examples:



denominators. The follow-up period starts with the date of the qualifying visit and occurs between January 1, 2012, and June 30, 2013 (Figure S.1) but differs by measure.

The criteria for selecting these diagnostic cohorts were the following:

- *Active Component Service Members*—The patient must have been an active-component service member during the entire 12-month observation period.
- *Received Care for PTSD or Depression*—Service members could enter the PTSD or depression cohort if they had at least one outpatient visit or inpatient stay (direct or purchased care) with a PTSD or depression diagnosis (primary or secondary) during January through June 2012.
- *Engaged with and Eligible for MHS Care*—Service members were eligible for a cohort if they had received a minimum of one inpatient stay or two outpatient visits for any diagnosis (i.e., related or not related to PTSD or depression) within the MHS (either direct or purchased care) during the 12-month observation period following the index visit. In addition, service members must have been eligible for TRICARE benefits during the entire 12-month observation period. Members who deployed or separated from the service during the 12-month period were excluded.

Using these criteria, we identified 14,576 service members for the PTSD cohort and 30,541 for the depression cohort. The two cohorts were not mutually exclusive, so it was possible for a service member to be in both the PTSD and depression cohorts. A total of 6,290 service members were in both cohorts, representing 43.2 percent of the PTSD cohort and 20.6 percent of the depression cohort. Most of the PTSD and depression cohort members (82.2 percent and 73.6 percent, respectively) had two or more encounters associated with a cohort diagnosis (primary or secondary) during the 12-month observation period. About 38 percent of the depression cohort had an MDD diagnosis code at some point during the observation year, while the remainder had other depression diagnoses.

To describe the quality of care for PTSD and depression delivered by the MHS, we computed performance rates for each quality measure. We examined variations in quality measure rates by service branch (Army, Air Force, Marine Corps, Navy) and TRICARE region (North, South, West, Overseas). In addition, we examined variations across service member characteristics, including age, race/ethnicity, gender, pay grade, and history of deployment at time of cohort entry.

Administrative data are particularly well suited for assessing care provision and quality across a large population, although such data do have limitations. For example, they do not include clinical detail documented in chart notes, including whether a patient refused a particular treatment or whether an evidence-based psychotherapy was delivered. A subsequent RAND report will present the results of an assessment of care quality for PTSD and depression using medical record review data, which can help fill

some of these gaps and provide an even more comprehensive view of service members' care.

Characteristics of Service Members Diagnosed with PTSD and Depression, Their Care Settings, and Services Received

Demographic Characteristics

The majority of the PTSD cohort was male, non-Hispanic white, and married, and nearly half of service members in the cohort were between 25 and 34 years old. In terms of geographic location, approximately one-third resided in each of the TRICARE South and TRICARE West regions, one-quarter resided in the TRICARE North region, and the remainder resided overseas or unknown locations. Only 2 percent lived in geographic areas considered remote according to TRICARE's definition. The same patterns held for the depression cohort, though a larger percentage of that cohort was female, younger, and never married.

Soldiers represent 70 and nearly 60 percent of the PTSD and depression cohorts, respectively. Given that only 49 percent of all active-component service members are soldiers (U.S. Census Bureau, 2012), this indicates soldiers were overrepresented among those with a PTSD or depression diagnosis. Enlisted service members represented approximately 90 percent of both cohorts. Approximately 60 percent of service members in each cohort had ten or fewer years of service. In the PTSD cohort, almost 92 percent of service members had at least one deployment, while in the depression cohort, 70 percent had ever deployed. Overall, at the start of their observation period, service members in the PTSD cohort who had a history of deployment had an average of almost 20 months of deployment, and those in the depression cohort averaged 16 months.

Care Settings and Diagnoses

Patients in the PTSD and depression cohorts received the majority of their care at MTFs (over 90 percent had at least some direct care); yet one-third of patients in the PTSD cohort and a quarter in the depression cohort received at least some care from purchased care. Nearly 60 percent of all primary diagnoses coded for encounters (and presumed to be the primary reason for the encounter) in both direct care and purchased care were for non-PH diagnoses. The most common co-occurring PH conditions among both cohorts were adjustment and anxiety disorders, as well as sleep disorders or symptoms.

Approximately two-thirds of patients in the depression cohort and three-fourths of patients in the PTSD cohort received care associated with a cohort diagnosis (coded in any position, primary or secondary) from mental health specialty settings, while approximately half of each cohort had cohort-related diagnoses documented during

care in primary care clinics. Further, patients saw many provider types for care associated with a cohort diagnosis. Most patients saw primary care providers, and 30 to 50 percent saw mental health care providers (primarily psychiatrists, clinical psychologists, and social workers) for this care. The median number of unique providers seen by cohort patients during the observation year at encounters with a cohort diagnosis (coded in any position) was 14 for PTSD and 12 for depression. Results suggest that patients with PTSD or depression may be seen by multiple providers across primary and specialty care, highlighting the importance of evaluating these patterns more thoroughly in future analyses to inform efforts to improve coordination of care and efficient management of these patients.

Assessment and Treatment Characteristics

Approximately 20 percent of each cohort had an inpatient hospitalization for any reason (i.e., medical or psychiatric), but a substantial proportion of these inpatient stays were associated with the cohort condition (66 percent for PTSD; 57 percent for depression). For inpatient hospitalizations that had a primary diagnosis of PTSD or depression, the median length of stay per admission was 23 days for patients in the PTSD cohort and eight days for patients in the depression cohort. The median number of outpatient encounters for any reason during the one-year observation period was 41 and 30 for PTSD and depression, respectively, suggesting high utilization of health care overall for these patients. This may be related to the high number of unique providers seen by these patients during the observation year. The majority of these visits were for non-PH conditions. The median number of visits with PTSD or depression as the primary diagnosis was ten visits and four visits, respectively.

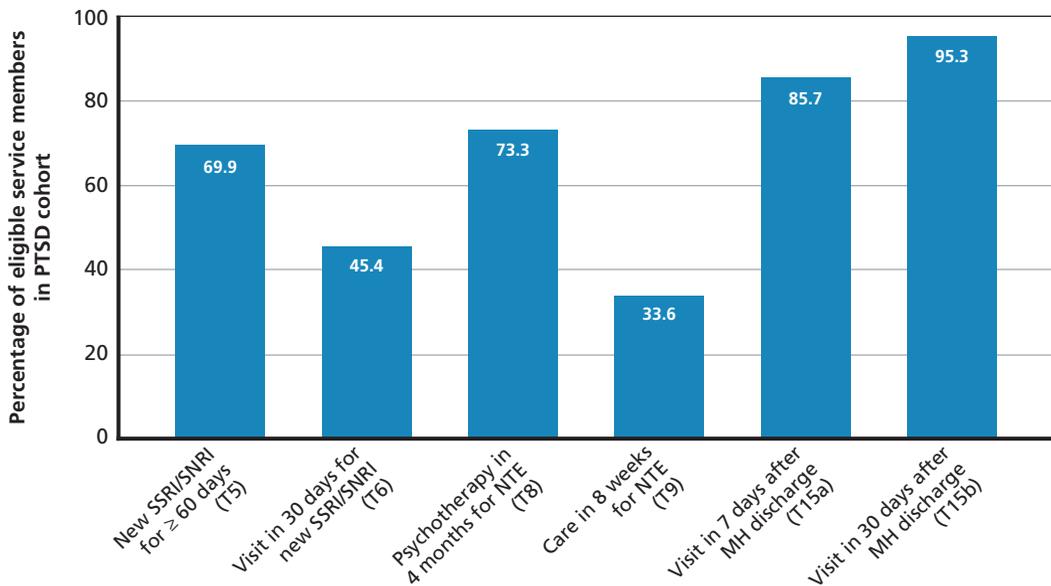
More than two-thirds of patients in both cohorts received psychiatric diagnostic evaluation or psychological testing, while other testing and assessment methods, including neuropsychological testing and health and behavior assessment, were used with less frequency. A high proportion of patients in both cohorts received at least one visit of psychotherapy (individual, group, or family therapy)—approximately 91 percent of the PTSD cohort and 82 percent of the depression cohort. For both cohorts, individual therapy was received more frequently than group therapy, while family therapy was received least often. About 37 percent of PTSD patients and 29 percent of depression patients received more than one type of psychotherapy. If receiving psychotherapy, patients in the PTSD cohort received an average of 18 psychotherapy sessions (across therapy modalities), while approximately 14 of these visits had a PTSD diagnosis (in any position). Patients in the depression cohort received an average of 14 psychotherapy sessions, of which approximately eight of these visits had a depression diagnosis (in any position). Among patients who received psychotherapy for any diagnosis, 20 percent of both PTSD and depression patients had nine to 15 psychotherapy sessions during the observation year and 44 percent and 32 percent had 16 or more sessions (for PTSD and depression, respectively).

Approximately five in six service members of each cohort filled at least one prescription for psychotropic medication during the observation year. Among types of psychotropic medications dispensed, antidepressants were filled by the largest percentage of both cohorts (78 and 77 percent of the PTSD and depression cohorts, respectively), while stimulants were filled by the smallest percentage of both cohorts (10 percent in each cohort). Of note is the finding that about 35 percent of the PTSD cohort and 26 percent of the depression cohort filled at least one prescription for a benzodiazepine. Further examination of the use of benzodiazepines, particularly in the PTSD patients, may be worthwhile given the current PTSD CPG that discourages their use (U.S. Department of Veterans Affairs and U.S. Department of Defense, 2010). In addition to their filling prescriptions for these psychotropic medications, 53 and 59 percent of the depression and PTSD cohorts, respectively, filled at least one prescription for an opioid. In many cases, patients in the PTSD and depression cohorts filled prescriptions for more than one psychotropic medication across different medication classes or from within the same medication class. One quarter of each cohort had prescriptions from two different classes, while nearly 43 percent of the PTSD cohort and 23 percent of the depression cohort filled prescriptions from three or more classes of medications. Additionally, a notable proportion of patients in each cohort filled prescriptions for two or more psychotropic medications within the same class. These results suggest that patients in both cohorts received a wide range of psychotropic medications. These medications were in addition to any nonpsychotropic medications used that were not included in these analyses.

Quality of Care for PTSD and Depression

Figures S.2 and S.3 summarize our overall findings for each quality measure for the PTSD and depression cohorts, respectively. Each quality measure focuses on the subset of patients who met the eligibility requirements as specified in the measure denominator. As a result, 41 percent of the PTSD cohort and 47 percent of the depression cohort were included in at least one quality measure denominator (other than the two psychiatric discharge rate measures, PTSD-RU1 and Depression-RU1, for which the denominators include the entire PTSD and depression cohorts, respectively). Approximately 70 percent of active-component service members in the PTSD cohort with a new prescription for an SSRI or SNRI filled prescriptions for at least a 60-day supply. Of those in the PTSD cohort who received a new prescription for an SSRI/SNRI, only about 45 percent had a follow-up evaluation and management visit within 30 days. Nearly three-quarters of service members in the PTSD cohort with a new treatment episode received some type of psychotherapy within four months of their new PTSD diagnosis. However, only 34 percent received a minimally appropriate level of care for patients entering a new treatment episode, defined as receiving four psychotherapy

Figure S.2
Measure Rates for Eligible Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: The codes in parentheses refer to the measure numbers. NTE = new treatment episode. The start of an NTE was defined as a primary diagnosis of PTSD at an outpatient visit with no condition-related treatment or condition-related medication in the prior six months. (See Table A.3, Key Definitions.) The look-back period for the “clean period” prior to the start of the NTE could include data from 2011.

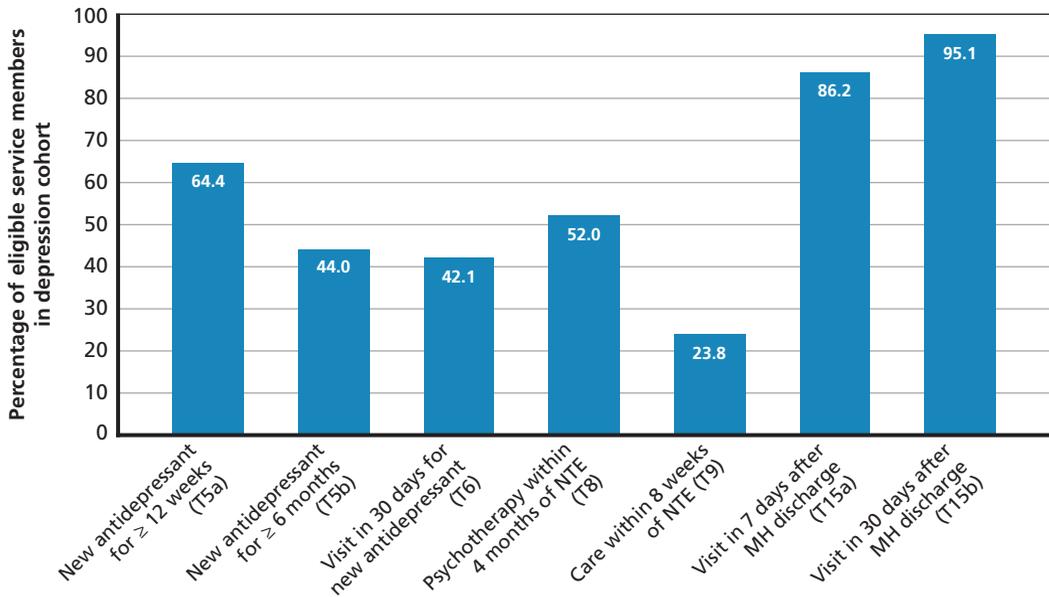
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visits or two evaluation and management (E&M) visits within the initial eight weeks. Rates of follow-up after hospitalization for a mental health condition were high for those in the PTSD cohort: 86 percent within seven days of discharge, and 95 percent within 30 days.

In the depression cohort, almost two-thirds of service members with a new prescription for an antidepressant medication filled prescriptions for at least a 12-week supply, and 44 percent filled prescriptions for at least a six-month supply. Among those who filled a new prescription for an antidepressant, 42 percent had a follow-up evaluation and management visit within 30 days. Half of service members in the depression cohort received psychotherapy within four months of a new treatment episode of depression. Only 24 percent of service members in the depression cohort received a minimum of four psychotherapy visits or two E&M visits within the first eight weeks of their new depression diagnosis. Rates of follow-up after hospitalization for a mental health condition were high for those in the depression cohort: 86 percent within seven days of discharge, and 95 percent within 30 days.

While it is often difficult, or not appropriate, to directly compare results from other health care systems or studies or related measures, prior results for these measures

Figure S.3
Measure Rates for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: The start of an NTE was defined as a primary diagnosis of depression at an outpatient visit with no condition-related treatment or condition-related medication in the prior six months. (See Table B.3, Key Definitions.) The look-back period for the “clean period” prior to the start of the NTE could include data from 2011.

RAND RR978-S.3

(or highly related measures) are presented in this report to provide important context to guide interpretation of the results from the current study. These comparisons serve to highlight areas where the MHS may outperform other health care systems or which may be high priorities for improvement. It should be noted that the MHS should work toward improvement on all of these measures, and the results presented provide a preliminary guide for further quality improvement efforts for PH conditions.

Variations in Care for PTSD and Depression

We also assessed the performance of each quality measure by service branch, TRICARE region, and service member characteristics, including race/ethnicity, gender, pay grade, age, and deployment history. Several large and statistically significant differences in quality of care were observed across branches of service and TRICARE region. For example, rates of follow-up within seven days after a mental health hospitalization (T15a) differed across branches of service by up to 15 percent and 14 percent in the PTSD and depression cohorts, respectively. Rates of follow-up within 30 days after a new prescription of SSRI/SNRI (T6) differed among TRICARE regions by up

to 11 percent in the PTSD cohort. Rates of psychotherapy within four months of a new treatment episode (T8) also varied across TRICARE regions by up to 11 percent in the depression cohort. Similarly, we observed several large and statistically significant differences in measure rates by service member characteristics. Among service members in the PTSD and depression cohorts, rates of adequate filled prescriptions for SSRI/SNRI for PTSD (T5) and antidepressants for depression (T5a and T5b) varied by pay grade by up to 17, 22, and 29 percent, respectively. Similarly, rates of adequate filled prescriptions for SSRI/SNRI for PTSD (T5) and antidepressants for depression (T5a and T5b) varied by age by up to 11, 20, and 26 percent, respectively. Understanding these large differences in performance based on service branch, TRICARE region, and service member characteristics may be useful in designing effective quality improvement initiatives.

Policy Implications

PTSD and depression are frequent diagnoses in active-duty service members (Blakeley and Jansen, 2013). If not appropriately identified and treated, these conditions may cause morbidity that would represent a potentially significant threat to the readiness of the force. Assessment of the current quality of care for PTSD and depression is an important step toward future efforts to improve care. Yet little is known about the degree to which care provided by the MHS for these conditions is consistent with guidelines. This report provides a description of the characteristics of active-component service members who received care for PTSD and depression from the MHS (either through direct care or purchased care), along with an assessment of the quality of care provided for PTSD and depression using administrative data-based quality measures. Allowing a six-month time frame in 2012 for cohort entry, almost 15,000 and over 30,000 active-component service members were identified who received a diagnosis of PTSD and depression, respectively, from the MHS.

The analyses presented in this report have several strengths, including taking an enterprise view of care provided by the MHS as a whole, examining variations in care, and providing a baseline assessment of performance related to care for PTSD and depression using several administrative data-based quality measures. We acknowledge some limitations, including relying on diagnoses coded in administrative data, which cannot characterize detailed aspects of care or provider decision making and may contain errors or inconsistencies. In the next phase of this study, these data will be augmented with additional quality measures and data from medical record review. However, despite these limitations, this report provides a comprehensive, enterprise view of service members who receive care for PTSD or depression and a baseline assessment of the care they receive across several quality measures. We offer several policy recommendations based on the results of this report.

Improve the Quality of Care for Psychological Health Conditions Delivered by the Military Health System

The results presented in this report represent one of the largest assessments of quality of care for PTSD and depression for service members ever conducted. This assessment highlighted that, while there are key strengths in some areas, quality of care for psychological health conditions delivered by the MHS should be improved. For example, more patients should receive a follow-up medication management visit following the receipt of a new medication for PTSD or depression. While a relatively high proportion of service members received at least one psychotherapy session, a much lower proportion were found to have had four psychotherapy visits or two E&M visits within eight weeks of the start of a new treatment episode for PTSD or depression. This suggests that MHS needs to ensure that service members receive an adequate intensity of treatment following treatment initiation. The MHS also demonstrated important strengths. We observed higher quality of care in providing timely outpatient follow-up after a psychiatric hospitalization, an essential service to minimize adverse consequences for higher-risk patients. Our results suggest that the MHS has the opportunity to be a leader in providing high-quality care for psychological health conditions and should continue to pursue efforts toward this goal.

Establish an Enterprise-Wide Performance Measurement, Monitoring, and Improvement System That Includes High-Priority Standardized Metrics to Assess Care for Psychological Health Conditions

Currently, there is no enterprise-wide system for performance monitoring on quality of PH care. A separate system for PH is not necessarily required; high-priority PH measures could be integrated into an enterprise-wide system that assesses care across medical and psychological health conditions. Although the selected quality measures presented in this report highlight areas for improvement, additional quality measures for PH conditions should be developed and tested. Furthermore, an infrastructure is necessary to support the implementation of quality measures for PH conditions on a local and enterprise basis, monitoring performance, conducting analysis of performance patterns, implementing quality improvement strategies, and evaluating their effect.

Integrate Routine Outcome Monitoring for Service Members with PH Conditions as Structured Data in the Medical Record as Part of a Measurement-Based Care Strategy

Measurement-based care has become a key strategy in the implementation of clinical programs to improve mental health outcomes (Harding et al., 2011). Currently, the ability to routinely monitor clinical outcomes for patients receiving PH care in the MHS is limited. When clinicians assess patient symptoms using a structured instrument (e.g., the nine-item Patient Health Questionnaire, or PHQ-9, to assess depres-

sion symptoms), the resulting score is entered as free text within a clinical note within AHLTA (formerly known as the Armed Forces Health Longitudinal Technology Application). As a consequence, scores are not available in existing administrative data. Further, these data are not easily linked with quality metrics. Routine monitoring for PTSD, depression, and anxiety disorders is now mandated by policy (U.S. Department of Defense, 2013) using the Behavioral Health Data Portal (BHDP); (U.S. Department of the Army, undated), and the services are working toward full implementation of this policy. While encouraging routine symptom monitoring is a positive step, BHDP is separate from the chart, and BHDP scores must be manually entered by the clinician.

Quality Measure Results for PH Conditions Should Be Routinely Reported Internally, Enterprise-Wide, and Publicly to Support and Incentivize Ongoing Quality Improvement and to Facilitate Transparency

All health care systems can identify areas in which care should be improved. Routine internal reporting of quality measure results provides valuable information to identify gaps in quality, target quality improvement efforts, and evaluate the results of those efforts. Analyses of variations in care across service branches, TRICARE regions, or patient characteristics can also guide quality improvement efforts. Further, these data could provide a mechanism to reward or incentivize improvements in quality metrics. While VHA and civilian health care settings have used monetary incentives for providers and administrators to improve performance, the MHS could provide special recognition or awards in place of financial incentives. In addition, reporting of selected quality measures for PH conditions could be required under contracts with purchased care providers (Institute of Medicine, 2010). Reporting quality measure results externally provides transparency, which encourages accountability for high-quality care and allows comparisons with other health care systems. Finally, external reporting would allow the MHS to demonstrate improvements in performance over time to multiple stakeholders, including service members and other MHS beneficiaries, providers, and policymakers.

Investigate the Reasons for Significant Variation in Quality of Care for PH Conditions by Service Branch, Region, and Service Member Characteristics

As noted above, we found several large and statistically significant differences in measure rates by service branch, TRICARE region, and service member characteristics, many of which may represent clinically meaningful differences. Understanding and minimizing variations in care by personal characteristic (e.g., gender, race/ethnicity, and geographic region) is important to ensure that care is equitable, one of the six aims of quality of care improvement in the seminal report *Crossing the Quality Chasm* (Institute of Medicine, 2001). Exploring the structure and processes used by MTFs and staff in high- and low-performing service branches and TRICARE regions may help to

identify promising improvement strategies for, and problematic barriers to, providing high-quality care (Institute of Medicine, 2001). Analyses of performance by individual MTFs and by service member subgroups at MTFs may inform the question of how to modify structure and processes to maximize improvement. Further investigations may also determine whether some of these variations may be due to methodological considerations, thus suggesting strategies for improvement in the quality measurement process.

This report represents an important first step in describing quality of care for PTSD and depression among service members who received treatment from the MHS. The results presented here can assist the MHS in identifying high-priority next steps to support continuous improvement in the care the MHS delivers to service members and their families.

Acknowledgments

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Abbreviations

BHDP	Behavioral Health Data Portal
CAPER	Comprehensive Ambulatory Professional Encounter Record
CBT	cognitive behavioral therapy
CPT	current procedural terminology
CPG	clinical practice guideline
DCoE	Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury
DMDC	Defense Manpower Data Center
DME	durable medical equipment
DoD	U.S. Department of Defense
E&M	evaluation and management
ED	emergency department
FY	fiscal year
HA	Health Affairs
HCPCS	Healthcare Common Procedure Coding System
HEDIS	Healthcare Effectiveness Data and Information Set
HMO	health maintenance organization
ICD-9-CM	International Classification of Diseases-9-Clinical Modification
IESD	Index Episode Start Date
IOM	Institute of Medicine

IPT	interpersonal psychotherapy
IPSD	Index Prescription Start Date
MDD	major depressive disorder
MDR	MHS Data Repository
MH	mental health
MHS	Military Health System
MTF	military treatment facility
NCQA	National Committee for Quality Assurance
NTE	new treatment episode
NQF	National Quality Forum
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PDTS	Pharmacy Data Transaction Service
PH	psychological health
PHQ-9	Patient Health Questionnaire (nine items)
POS	place of service
PPO	preferred provider organization
PTSD	posttraumatic stress disorder
QI	quality improvement
SD	standard deviation
SIDR	Standard Inpatient Data Record
SNRI	serotonin and norepinephrine reuptake inhibitor
SSN	Social Security number
SSRI	selective serotonin reuptake inhibitor
TBI	traumatic brain injury
TCM	transitional care management

TED-I	TRICARE Encounter Data–Institutional
TED-NI	TRICARE Encounter Data–Noninstitutional
TF-CBT	trauma-focused cognitive behavioral therapy
VA	U.S. Department of Veterans Affairs
VHA	Veterans Health Administration
VM6	(V)irtual Storage Access Memory (M)ilitary Health System Data Repository 200(6)

Introduction

There is a commitment at the highest level of government to provide mental health and substance abuse treatment services for service members and their families now and in the future (Obama, 2012). Several reports have highlighted the need for close monitoring of the quality of care provided for psychological health (PH) conditions in military populations (Hoge, Auchterlonie, and Milliken, 2006; Tanielian and Jaycox, 2008). A recent comprehensive review of the Military Health System (MHS) (U.S. Department of Defense, 2014b) found that quality of care was often similar to other health care systems, but significant variability across military treatment facilities (MTFs) and areas for improvement were identified. In response to the MHS Review report, then Defense Secretary Chuck Hagel (U.S. Secretary of Defense, 2014) called for MTFs that are low performers on quality and safety to create action plans for performance improvement. Further, he called for more transparency in providing patients, providers, and policy-makers with information about quality and safety performance of the MHS.

A series of reports by the Institute of Medicine (IOM) have addressed quality of care provided to military populations. In a 2010 study of the mental health counseling services under TRICARE, the IOM recommended a “comprehensive quality-management system for all mental health professionals” to monitor evidence-based practices and implement quality measures to assess the performance of mental health professionals (Institute of Medicine, 2010). A more recent IOM report focused on preventing psychological disorders in service members and their families and highlighted the need for evidence-based measures to evaluate interventions (Institute of Medicine, 2014a). Another recent IOM report (Institute of Medicine, 2014b) on the treatment of posttraumatic stress disorder (PTSD) in military and veteran populations emphasized that a “high-performing” system for managing PTSD requires performance measures and feedback to improve care. Such a system would entail the “systematic collection, analysis, and dissemination of data for assessing the quality of PTSD care.” All of these inquiries reached the same conclusion: There is a strong need for development of evidence-based quality measures, monitoring of the care provided to MHS beneficiaries for PH conditions, and implementation of systematic quality improvement efforts to improve outcomes.

Concerns about the quality of mental health care are not unique to the MHS; similar concerns have been raised about the mental health care provided by the U.S. Department of Veterans Affairs (VA) health care system and civilian health care systems. For example, an evaluation of the mental health care provided by the Veterans Health Administration (VHA) identified some strengths and several areas for improvement (Farmer et al., 2010; Sorbero et al., 2010). In civilian commercial health plans in 2012, 58 percent of those with a mental health hospitalization received follow-up within seven days of discharge, and 69 percent of newly treated patients remained on an antidepressant medication for 180 days (National Committee for Quality Assurance, 2013b). These examples highlight the importance of assessing quality of care to support identifying and targeting strategies to make improvements. Evidence from national quality reporting efforts have demonstrated several improvements over time for the mental health quality measures that are monitored (National Committee for Quality Assurance, 2013b; U.S. Department of Health and Human Services, 2014), but there is room for improvement.

At the request of the U.S. Department of Defense (DoD), the RAND Corporation initiated a project to (1) provide a descriptive baseline assessment of the extent to which providers in the MHS implement care consistent with clinical practice guidelines (CPGs) for PTSD and depression and (2) examine the relationship between guideline-concordant care and clinical outcomes for these conditions. This report provides a description of the characteristics of active-component service members who received care for PTSD and depression from the MHS, along with an assessment of the quality of care provided for PTSD and depression using administrative data-based quality measures. Administrative data detail when a service member visits a health care provider; characteristics of those visits, such as location of care and the provider who treats the service member; the diagnoses and procedures recorded during those visits; and prescriptions filled by the service member. We focus on active-component service members to increase the likelihood that the care they received was provided or paid for by the MHS, rather than other sources of health care. Members of the National Guard and Reserve components, retirees, and family members were not included in these analyses. In a subsequent report, we will present the results from quality measures that incorporate data from medical record review, which will focus only on care provided at MTFs (i.e., direct care). In addition, we plan to describe the results of analyses to examine the link between guideline-concordant care and outcomes, analyses that could not be included in this report due to lack of available data.

It should be noted that the CPG for depression specifically addresses the treatment of major depressive disorder (MDD), contrary to our depression cohort, which included a more inclusive set of depression diagnoses in addition to MDD. This more inclusive approach was based on the specifications of existing quality measures for depression, which are not restricted to MDD diagnostic codes, and on the field test findings indicating that some cases of MDD may be coded with some frequency

with non-MDD codes (particularly 311, depressive disorder, not elsewhere classified) (National Quality Forum, 2014).

PTSD and Depression Among Service Members

Between 2001 and 2014, more than 2.6 million service members from the United States were deployed to Afghanistan in support of Operation Enduring Freedom (OEF) and to Iraq in support of Operation Iraqi Freedom (OIF) and Operation New Dawn (Institute of Medicine, 2014b). Rates of PTSD in active-duty service members who have served in OEF or OIF have been estimated at between 4 and 20 percent (Institute of Medicine, 2013). Over the past decade, the percentage of active-duty service members receiving treatment for PTSD¹ has increased substantially, from 1 percent in 2004 to more than 5 percent in 2012 (Institute of Medicine, 2014b). The rate of PTSD varies by service, with 4 percent of Air Force, 4.5 percent of Navy, 10 percent of Marines, and 13.5 percent of Army service members receiving a PTSD diagnosis. There are also differences in rates of PTSD diagnosis between male and female service members (9 percent versus 13 percent) and between whites and nonwhites (8.5 percent versus 11 percent).

An earlier review (Tanielian and Jaycox, 2008) identified 11 studies that reported rates of depression among active-duty service members serving in OEF or OIF, ranging from 5 percent (Hoge, Auchterlonie and Milliken, 2006; Kolkow et al., 2007; MHAT-II, 2005) to 37 percent (Lapierre, Schwegler, and Labauve, 2007). Correlates of depression in the 11 studies included having a hospitalization during deployment or other physical problems; being female, under 25 years of age, nonwhite, or junior enlisted; and deployment intensity (i.e., level of combat, two or more deployments, deployment for more than six months) (Tanielian and Jaycox, 2008). A more recent review (Ramchand et al., 2015) provided estimates of the prevalence of depression among veterans having served in OEF or OIF from studies published between 2009 and 2014, ranging from 1 percent of male veterans receiving care in VHA facilities (Haskell et al., 2011) up to 60 percent of veterans referred to the New Jersey War Related Illness and Injury Study Center (WRIISC) (Helmer et al., 2009). This review (Ramchand et al., 2015) also reported an increased risk of depression for individuals who were female, white, not married, in the Army, enlisted, and lower rank based on studies of current service members or Veterans.

¹ A service member was classified as having PTSD if there was at least one inpatient stay with a diagnosis of PTSD or two outpatient visits with a diagnosis of PTSD more than one day apart. PTSD may have been listed as the primary or secondary diagnosis.

Care Provided to Service Members with PTSD and Depression

The MHS provides physical and PH care for active-component service members, National Guard and Reserve members, retirees, their families, survivors, and some former spouses worldwide. The health care resources of the Uniformed Services, known as direct care, are used to provide care through MTFs. As of December 2013, the MHS had about 9.6 million beneficiaries (U.S. Department of Defense, 2014a). For fiscal year (FY) 2014, the worldwide resources projected for the MHS are 154,000 employees, 56 hospitals (41 in the United States), 360 ambulatory care clinics (290 in the United States), and 262 dental clinics (210 in the United States) (U.S. Department of Defense, 2014a). Direct care is supplemented by care provided outside of MTFs by civilian providers (i.e., health care professionals, institutions, pharmacies, and suppliers), known as purchased care. The civilian resources projected for use during FY 2014 include 523,297 primary care, behavioral health, and specialty care network providers, including 60,272 behavioral health network providers; 3,524 TRICARE network acute care hospitals; 948 behavioral health facilities; and 58,535 contracted retail pharmacies (U.S. Department of Defense, 2014a).

Programs and services for prevention, diagnosis, and treatment of mental health conditions, including PTSD and depression, are available to all service members in DoD (Institute of Medicine, 2014b). Although not specific to PTSD and depression, prevention programs developed by each branch of the service include training and services meant to “foster mental resilience, preserve mission readiness, and mitigate adverse consequences of exposure to stress” (Institute of Medicine, 2014b). Before deployment, each service member is screened with a question about previous counseling or care for mental health. Service members returning from deployment are screened for symptoms of PTSD and depression at 30 days and three to six months. Referral for further evaluation and treatment is based on results of the screening. Individuals with symptoms of PTSD and depression are often treated on an outpatient basis through mental health clinics, primary care settings by primary care practitioners and mental health professionals, and programs targeting PTSD and/or depression. These programs reside in the service branches, and in TRICARE contract programs. Other PTSD and depression treatment options include intensive outpatient programs that utilize psychotherapy and pharmacotherapy, in addition to complementary therapies (e.g., acupuncture, yoga, meditation). Inpatient treatment for PTSD and depression is available in MTFs as direct care and from other providers and facilities through purchased care.

Measuring Quality of Health Care

High-quality health care is a priority of the MHS. Health Affairs (HA) Policy 02-016 (Health Affairs, 2002) laid out the fundamentals of the MHS quality of health care

system. A comprehensive review of access to care, quality of care, and patient safety in the MHS highlighted movement toward a “high-reliability health system” (U.S. Department of Defense, 2014b). High-priority goals for improving performance were stated to be “harm prevention and quality improvement” supported by “better analytics, greater clarity in policy, and aligned training and education programs” (U.S. Department of Defense, 2014b).

CPGs set standards for appropriate care and represent expert consensus, after systematic review of relevant literature, on how a disorder should be diagnosed and treated. For example, the VA and DoD have published CPGs for the management of MDD (U.S. Department of Veterans Affairs and U.S. Department of Defense, 2009) and posttraumatic stress (U.S. Department of Veterans Affairs and U.S. Department of Defense, 2010), and these guidelines describe evidence-based processes of care.

Quality measures, also called performance measures, provide a way to measure how well health care is being delivered. Quality measures are applied by operationalizing aspects of care recommended by the CPGs using data sources such as administrative data, medical records, clinical registries, and patient surveys. Such measures provide information about the health care system and highlight areas in which providers can take action to make health care safer and reduce health disparities (National Quality Forum, 2013b). Quality measures incorporate operationally defined numerators and denominators, and scores are typically presented as the percentage of eligible patients who received the recommended care (e.g., percentage of PTSD patients screened for co-occurring depression).

According to the Agency for Healthcare Research and Quality (undated), quality measures are generally used by organizations for one or more of three purposes:

- *Quality improvement.* Health care systems use quality measures to monitor internal or external quality improvement (QI). Internal QI programs measure the quality of care within a health care system or organization. External QI programs measure quality in several health care organizations and compare performance across those organizations (Agency for Healthcare Research and Quality, undated).
- *Accountability.* Organizations increasingly use quality measures for accountability purposes, including selecting health care providers, creating financial and non-financial (e.g., public reporting) incentives for health care providers, and maintaining provider performance standards. The organizations and individuals that use quality data for accountability purposes overlap with those that use them for QI purposes, including purchasers and payers of health care (e.g., health insurance plans and Centers for Medicare & Medicaid Services [CMS]), regulatory agencies, accreditation organizations, and even patients (Agency for Healthcare Research and Quality, undated).

- *Research.* Quality measures are often used in health services research studies to measure how frequently evidence-based care is provided to different patient subgroups and in a variety of health care settings. They may be employed to measure rates in various population subgroups to document disparities in health care, differences between comparison groups in program evaluations, or changes over time in response to implementation of QI efforts (Agency for Healthcare Research and Quality, undated).

Measuring adherence to CPGs using quality measures can establish a baseline assessment of care against which future improvements can be compared, identify potential areas for quality improvement, and provide support for developing an infrastructure to continuously improve the quality of PH care provided to service members. The level of adherence to the recommendations of CPGs is currently unknown for much of the care for psychological conditions in the MHS. Furthermore, there is currently no MHS-wide system in place to routinely assess the quality of care provided for PTSD and depression or to understand whether the care is having a positive effect on outcomes.

PTSD and Depression Quality Measures

Based on earlier work conducted by RAND, we selected six quality measures for PTSD and six quality measures for depression as the focus of this report. These measures are described briefly below (Table 1.1), with detailed technical specifications provided in Appendixes A and B. These measures were selected because they can be computed using only administrative data. Within each set of measures, five measures assess care described in the VA/DoD CPGs, including adequate medication trial and medication management, receipt of any psychotherapy, receipt of a minimal number of visits associated with a first-line treatment (either psychotherapy or medication management), and follow-up after hospitalization. Among these treatment process measures, two measures in each set focus on care provided to a subset of patients in a “new treatment episode.” These are patients who receive care for the cohort diagnosis (i.e., PTSD or depression) after a period of at least six months with no care for that diagnosis (a “clean period”), either in outpatient or inpatient care or by treatment with a condition-specific medication. The sixth measure in each set provides information on the rate of utilization of inpatient care, which is important as a descriptive measure that allows comparing by MTF and monitoring over time.

Overview of Prior Work to Identify PTSD and Depression Quality Measure Sets

In prior work, RAND developed a conceptual framework for assessing the quality of care for PH conditions and identified a candidate set of measures for monitoring,

Table 1.1
Quality Measures for Patients with PTSD and Patients with Depression

PTSD	Depression ^a
Medication Management	
Percentage of PTSD patients with a newly prescribed SSRI/SNRI medication for ≥ 60 days [PTSD-T5]	Percentage of depression patients with a newly prescribed antidepressant medication for <ul style="list-style-type: none"> • 12 weeks [Depression-T5a]^b • six months [Depression-T5b]
Percentage of PTSD patients newly prescribed an SSRI/SNRI with follow-up visit within 30 days [PTSD-T6]	Percentage of depression patients newly prescribed an antidepressant with a follow-up visit within 30 days [Depression-T6]
Psychotherapy	
Percentage of PTSD patients in a new treatment episode who received any psychotherapy within four months [PTSD-T8]	Percentage of depression patients in a new treatment episode who receive any psychotherapy within four months [Depression-T8]
Receipt of Care	
Percentage of PTSD patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks [PTSD-T9]	Percentage of depression patients in a new treatment episode with four psychotherapy visits or two evaluation and management visits within the first eight weeks [Depression-T9]
Follow-up After Hospitalization	
Percentage of psychiatric inpatient hospital discharges of patients with PTSD with follow-up <ul style="list-style-type: none"> • Within seven days of discharge [PTSD-T15a] • Within 30 days of discharge [PTSD-T15b]^b 	Percentage of psychiatric inpatient hospital discharges of patients with depression with follow-up <ul style="list-style-type: none"> • Within seven days of discharge [Depression-T15a] • Within 30 days of discharge [Depression-T15b]^b
Inpatient Utilization	
Number of psychiatric discharges per 1,000 patients with PTSD [PTSD-RU1]	Number of psychiatric discharges per 1,000 patients with depression [Depression-RU1]

^a The definition of depression for cohort entry includes more diagnostic codes than only those for MDD. See Table B.3 for descriptions of the codes used to define the study cohort and the eligible populations for each quality measure (which vary by measure).

^b NQF-endorsed measure.

assessing, and improving the quality of care for PTSD and depression (Hepner et al., 2015). The effort focused primarily on outpatient care for PTSD and depression provided in both primary and specialty care settings. RAND used a systematic process to develop candidate measure sets for both PTSD and depression, completing Steps 1 through 7 outlined in Figure 1.1.

RAND developed a two-dimensional framework for classifying measures for PH conditions using the care continuum and measure type as the two dimensions (Step 1 in Figure 1.1). The first dimension, the care continuum, consisted of five phases of care:

Figure 1.1
Process for the Development of PTSD and Depression
Quality Measure Sets

1. Create a framework for classifying measures
2. Identify existing measures
3. Map existing measures to framework
4. Examine whether new measures should be developed
5. Develop new measures or adapt measures where needed
6. Select high-priority measure set
7. Prepare conceptual descriptions for measure set
8. Operationalize detailed measure specifications
9. Pilot test measures within a particular health system

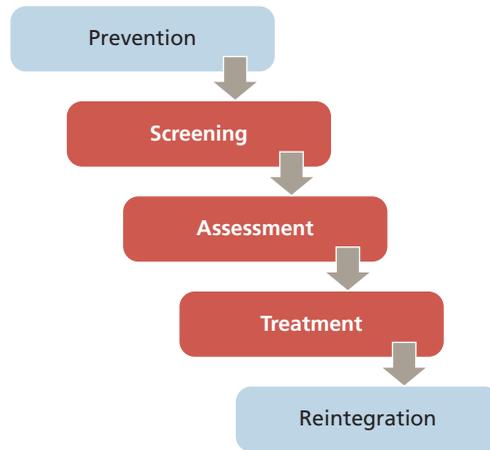
RAND RR978-1.1

prevention, screening, assessment, treatment, and reintegration. This is an adaptation of the continuum of care for PH used by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) (Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, 2011). In practice, these five phases may overlap and not be entirely distinct. Nonetheless, they serve as a useful heuristic for developing and characterizing clinician actions and quality measures. Screening, assessment, and treatment are care phases typically addressed in CPGs (see Figure 1.2).

The second dimension of the framework, *measure type*, is a commonly used term in quality measurement and describes which aspect of health care is the focus of the quality measure (Agency for Healthcare Research and Quality, undated). NQF, a non-profit organization that endorses standards for measuring and publicly reporting health care performance in the United States (National Quality Forum, 2013a), uses measure type as one way to characterize each measure included in its measure database. To classify the measures, we used Donabedian's descriptors of structure, process, and outcome (Donabedian, 2003) and added two other measure types: patient experience and resource use. CPGs typically focus on processes of care (see Figure 1.3).

RAND identified existing measures by reviewing clinical practice guidelines and databases of quality measures (Step 2), primarily focusing on measures assessing care for PTSD and depression but including measures that may apply to multiple PH conditions (e.g., assessment for suicide risk). Subsequently, existing measures were mapped to the quality measures framework (Step 3). In Step 4, RAND used the framework to take an inventory of existing measures throughout the care continuum (i.e., preven-

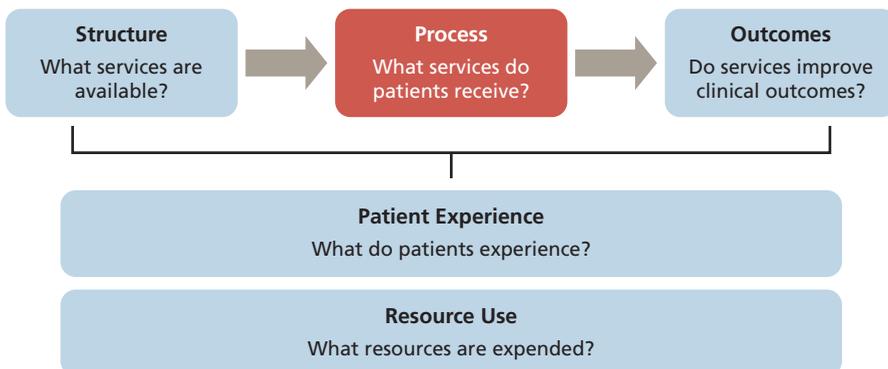
Figure 1.2
Phases of the Care Continuum



RAND RR978-1.2

tion, screening, assessment, treatment, and reintegration) and across measure type (i.e., structure, process, outcome, patient experience, and resource use) in order to examine whether new measures were needed to assess quality measurement for PTSD and depression. RAND then developed or adapted measures to address high-priority areas where existing measures were lacking (Step 5). In addition, some measures were refined or adapted to incorporate recent evidence or to increase the likelihood the measures would be appropriate for the MHS. Finally, using an expert consensus process, the measure sets were reduced based on their importance, previous use in a military population, and the feasibility of implementation (Step 6). This resulted in 29 candidate

Figure 1.3
Types of Quality Measures



RAND RR978-1.3

measures for PTSD and 29 candidate measures for depression, and detailed descriptions of each candidate measure were developed (Step 7).

The implementation of a quality measure requires developing detailed technical specifications grounded in the data infrastructure available within a particular setting (e.g., International Classification of Diseases, Ninth Revision, Clinical Modification [ICD-9-CM] diagnosis, procedure codes, database, and variable names). In this report, we describe the operationalization and pilot testing of six selected quality measures for PTSD and six for depression that rely on administrative data (Steps 8 and 9, respectively). These measures focus on the treatment phase of the care continuum and are process of care measures. An additional measure assesses inpatient utilization. This measure focuses on the treatment phase of the care continuum and is a resource use measure. As described later in this report, these measures vary in terms of their development and use by other health care systems. Some are well established (e.g., follow-up after mental health hospitalization), and some are newer and will require additional evaluation of their reliability and validity (e.g., adequate medication trial for PTSD patients). An additional set of measures that rely on medical record review data will be operationalized and tested in future RAND work.

Organization of This Report

This report provides a description of the characteristics of service members who received care for PTSD and depression from the MHS, along with an assessment of the quality of care provided for PTSD and depression using administrative data-based quality measures. We focused on care delivered in MTFs as direct care and through other providers and facilities as purchased care to active-component service members who have been diagnosed with PTSD or depression. Understanding the current status of care is an important step toward future efforts to improve care, including the development of an ongoing quality monitoring process.

Chapter Two describes the data sources and methods used to operationalize and apply the PTSD and depression administrative data measures. Chapter Three includes a description of the characteristics of the service members with PTSD and depression and their utilization of health care services in the MHS. Chapter Four presents results on the quality of care provided for PTSD and depression. Chapter Five examines variations in quality of care by several service member characteristics. Chapter Six summarizes the main findings and provides policy implications that follow from the findings. We identify areas of high performance and areas that are potential targets for quality improvement based on the administrative data quality measures. Appendixes A and B contain detailed technical specifications for implementing the quality measures and definitions of key terminology used in the quality measures. Appendix C contains the rules for identifying inpatient stays and outpatient visits.

Methods

Overview

In this chapter, we describe the methods used to conduct the analyses presented in this report. We describe data sources used for the analyses, along with a brief description of how we processed utilization data. Next, we describe how we identified two cohorts of active-component service members: those with a diagnosis of PTSD and those with a diagnosis of depression. We provide a general description of the technical specifications used to define the quality measures. We present an overview of the analytic approach we used to describe the cohort and the care they received, to examine the quality measure results for the MHS, and to explore variations in care. Finally, we provide an overview of the strengths and weaknesses of using administrative data to describe care and explain why we did not evaluate the relationship between quality measures and clinical outcomes in these analyses.

Data Sources

We used several sources of MHS administrative data to identify the eligible diagnostic cohorts, describe their characteristics, construct the quality measures, and conduct the analyses described in this report. These data document information about an inpatient stay or outpatient visit, such as the facility where care was delivered, the provider who treated the patient, the diagnoses that were assigned, the procedures that were performed, and the prescriptions that were filled. These data do not include detailed clinical information, such as notes entered into the medical record by providers. The administrative data represented health care provided to active-component service members for an 18-month period during January 1, 2012, through June 30, 2013.

Active-component service members can obtain health care from the MHS in two ways. Health care provided by MTFs is called direct care. Health care provided by civilian providers and paid for by TRICARE is called purchased care. The Defense Health Agency (DHA) processes information about these two types of care. Extract files of administrative data for analyses in this report were created from the MHS Data Repository (MDR). These files contain records on all inpatient and outpatient health care encounters for TRICARE beneficiaries paid (fully or partially) by TRICARE. We

used administrative data that contained records on all inpatient and outpatient health care encounters for direct care and purchased care. All data records in the MDR are at the individual level with a scrambled Social Security number (SSN), allowing all records for an individual to be de-duplicated and linked.¹ Table 2.1 provides a description of each data source.

Processing Inpatient and Outpatient Encounter Data

Preparing encounter data for use in calculating the quality measures entailed extensive processing of inpatient stay records (the SIDR and TED-I files) and of outpatient visit records (the CAPER and TED-NI files) to ensure that encounters (i.e., visits, inpatient stays) were accurately counted. Here we provide a brief overview of the decisions made in processing these data. The detailed steps in this process, including variable names and codes, are documented in Appendix C.

The first step of processing the acute care inpatient encounter data was developing a definition of an encounter and applying rules to operationalize the definition. To

Table 2.1
Administrative Data Content of Data Sources in Direct Care and Purchased Care

Content	Data Source
Outpatient services delivered within MTFs (direct care)	Comprehensive Ambulatory Professional Encounter Record (CAPER)
Inpatient services delivered within MTFs (direct care)	Standard Inpatient Data Record (SIDR)
Provider services delivered outside of MTFs (purchased care)	TRICARE Encounter Data–Noninstitutional (TED-NI)
Facility services delivered outside of MTFs (purchased care)	TRICARE Encounter Data–Institutional (TED-I)
TRICARE eligibility and enrollment	VM6 Beneficiary Level
TRICARE eligibility/active-duty status	Active-Duty Master File
Dispensed medication	PDTS
Service characteristics	Defense Manpower Data Center (DMDC)
Deployment history	Contingency Tracking System–Deployments

¹ Pharmacy Data Transaction Service (PDTS) files included only the scrambled SSN of the plan sponsor. It was expected that the majority of the sponsors were the active-component members. To identify nonsponsor files, cross-checks between the PDTS and the VM6 Beneficiary Level files were made to compare age and gender. Those cases that were not matches to gender or age category (one age-category change to the next level during the 12-month measurement period was allowed) were dropped from the analyses.

avoid double-counting, we eliminated duplicate records for the same inpatient stay. Because our analysis included only inpatient care provided in acute care facilities, all nonacute care (i.e., rehabilitation care, residential/extended care, skilled nursing facility care, and home care) was excluded from the file of acute inpatient stays. The rules were applied to records in both the direct care inpatient file (i.e., SIDR) and the purchased care facility file (i.e., TED-I).

Similar rules were applied to outpatient encounters. Multiple lines of data with the same provider specialty on the same date were counted as a single outpatient visit for that specialty. Multiple records for the emergency department or ambulatory surgery on the same date were counted as a single outpatient visit, regardless of the number of providers or specialties involved. Other than emergency department or ambulatory surgery, encounter records on the same day to providers with different specialties (other than radiology) were counted as separate outpatient visits. Encounter records with providers who generally provide ancillary services, such as general duty nurses, corpsmen, and interns/residents without a license, were not counted as separate outpatient visits. These rules were applied to records in both the direct care outpatient file (i.e., CAPER) and the purchased care provider file (i.e., TED-NI).

Identification of Service Members in PTSD and Depression Cohorts

To describe and evaluate care for PTSD and depression, we identified a cohort of service members who received care with at least one of these diagnoses. Figure 2.1 shows the eligibility criteria used to identify each diagnostic cohort. Next, we describe each eligibility criterion in more detail.

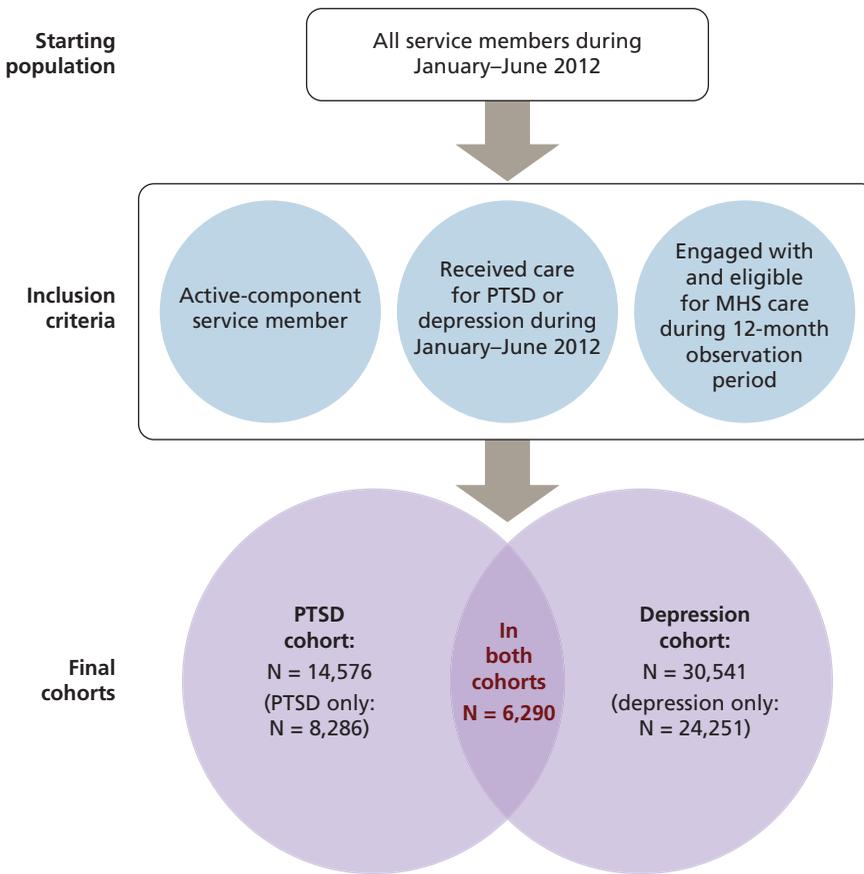
Selected Active-Component Service Members

To be included in either cohort, the patient must have been an active-component service member. Specifically, service members needed to be present in the Active Duty Master File (which was current through September 30, 2012), indicating active status, to be included. We focused on active-component service members to increase the likelihood that the care they received was provided or paid for by the MHS, rather than other sources of health care. Further, focusing on this population will support our subsequent work, which will include medical record review of direct care only. Members of the National Guard and Reserve components, retirees, and family members were not included in these analyses.

Received Care for PTSD or Depression

RAND obtained data from 2008 to 2013 for the data sources described earlier. To ensure that the results of these analyses were most relevant, we focused on describing and assessing care for the most recent period of data available. Service members could

Figure 2.1
Eligibility Criteria for Cohort Entry



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enter the cohort based on care received during the first six months of 2012 (January 1–June 30, 2012). This ensured that we could describe one year of care following cohort entry for each service member. Therefore, this report focuses on care delivered from January 2012 through June 2013, with a one-year observation period for each applicable diagnosis for each individual service member.

Service members were eligible for the PTSD cohort if they had at least one outpatient visit or inpatient stay with a primary or secondary diagnosis for PTSD during the first six months of 2012 (January 1–June 30, 2012). Similarly, service members were eligible for the depression cohort if they had at least one outpatient visit or inpatient stay with a diagnosis for depression during the first six months of 2012 (January 1–June 30, 2012). The care could have been provided by direct care or purchased from care providers or facilities. We required only one diagnosis-associated encounter for cohort entry to be as inclusive as possible. We acknowledge that by using this approach we may have included some patients with a single encounter who may have been inac-

curately diagnosed, but we also avoided excluding those individuals with an accurate diagnosis who should have had follow-up care who did not receive it.

We defined PTSD and depression using ICD-9-CM diagnosis codes. The code could be recorded on the encounter record as the primary or secondary diagnosis. In the case of depression, codes were selected to be more inclusive and created the broadest population of depression for the cohort. Therefore, the depression cohort included major depressive disorder (single episode and recurrent episode), dysthymic disorder, depressive disorder not elsewhere classified, unspecified and other specified mood disorders, along with a few additional depression-related ICD-9 diagnoses (see Appendix B, Table B.2 for the full list of ICD-9 codes). We used a more inclusive set of diagnoses (e.g., dysthymia, depressive disorder, not elsewhere classified) to align with several existing quality measures for depression, which are not limited to MDD diagnoses (e.g., National Quality Forum, 2014). Further, this increases the inclusion of cases of MDD that may have been coded otherwise (e.g., commonly, with code 311, depressive disorder, not elsewhere classified (National Quality Forum, 2014).

Engaged with and Eligible for MHS Care

In defining the cohort, we aimed to increase the likelihood that service members received their care regularly through the MHS. This was chiefly because our primary goal was to describe care delivered by the MHS, and it was not possible to characterize care that was received outside the MHS. Service members were eligible for a diagnostic cohort only if they had received a minimum of one inpatient stay or two outpatient visits with any diagnosis (i.e., related or not related to PTSD or depression) within the MHS (either direct or purchased care) during the 12-month observation period. In addition, service members must have been eligible for TRICARE benefits during the entire 12-month observation period (based on not having two or more consecutive months of TRICARE ineligibility in the VM6 Beneficiary Level files). Service members who separated during the 12-month period were excluded. Of those who were identified as potentially eligible for cohort inclusion by diagnosis, 46 percent of those with PTSD and 45 percent of those with depression separated in the subsequent 12 months and were excluded. We also excluded members who deployed during the 12-month period, as we did not have access to care delivered in theater. Only 3 to 5 percent of those potentially eligible (PTSD and depression, respectively) were excluded by reason of deployment.

Identified PTSD and Depression Cohorts

Using these criteria, we identified 14,576 service members for the PTSD cohort and 30,541 for the depression cohort. Most of the PTSD and depression cohort members (82.2 percent and 73.6 percent, respectively) had two or more encounters associated with a cohort diagnosis (primary or secondary) during the 12-month observation period. About 38 percent of the depression cohort had an MDD diagnosis code during

the observation year, with the remainder having other depression diagnoses (predominantly depressive disorder, not elsewhere classified).

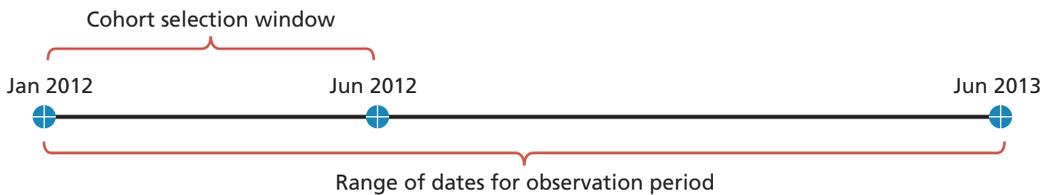
It was possible for a service member to be in both the PTSD and depression cohorts, meaning the two cohorts were not mutually exclusive. A total of 6,290 service members were in both cohorts, representing 43.2 percent of the PTSD cohort and 20.6 percent of the depression cohort. Being in both cohorts indicates that relevant diagnoses for both conditions were coded during the cohort selection window (as in the example shown in Figure 2.2). Diagnostic codes of PTSD or depression falling only outside of the six-month cohort selection window would not qualify the service member for cohort entry. While we considered presenting results separately for the subgroups included in both cohorts, we believe that the focus only on the comorbidity between PTSD and depression would ignore other relevant comorbidities and would be an artifact of the two diagnoses selected for this work.

The figure below shows the period of time in which service members could enter a cohort and period of time during which we assessed their care (see Figure 2.2).

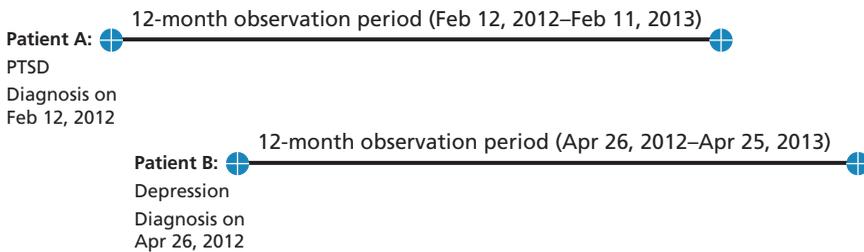
Technical Specifications for Quality Measures

We developed or adapted technical specifications for each of the six measures for PTSD and six measures for depression listed in Chapter One. These are detailed step-by-step instructions about how the measure is calculated using variables in the MHS administrative data files for inpatient and outpatient care provided as direct care or purchased

Figure 2.2
Timing of Cohort Entry and Computation of 12-Month Observation Period



Two examples:



care. For each measure, the technical specifications include the following elements: measure title, measure statement, numerator, denominator, measure type, care setting, numerator specifications, denominator specifications, measure source, the rationale for including the measure, and the feasibility of measuring performance from existing data. Tables of ICD-9-CM diagnosis codes and current procedural terminology (CPT) codes are provided if they are required for identifying those eligible for the numerator and denominator, and any denominator exclusions are noted. The complete technical specifications for all measures are provided in Appendixes A and B of this report.

Analyses

The analyses in this report have two purposes: to describe the service members in the two diagnostic cohorts and to characterize the quality of PTSD and depression care based on the administrative data quality measures. In many ways, these analyses serve as a “first cut” in understanding the quality of care, identifying domains of care where further analyses will be necessary in greater detail or where additional types of data are needed to augment the administrative data (see limitations section).

Descriptive Analyses

We describe service members in the PTSD and depression cohorts in terms of demographic, service, and health care utilization characteristics. First, we characterize the service members in the cohorts by gender, age, race/ethnicity, and marital status. We then describe their military service characteristics, including branch of service, pay grade, years of service, deployment history, and geographic region. Finally, using health care utilization data, we describe the treatment setting, characteristics of the care delivered, and types of treatment provided.

Specifically, we describe the care received by the system of care used (i.e., direct or purchased care), the primary condition being treated (cohort condition, other PH condition, or non-PH condition), and the prevalence of co-occurring conditions. We then report the type of clinic providing the care, characteristics of outpatient visits and inpatient stays, and the types of providers treating members of the cohort. Finally, we consider assessments used to treat the cohort condition, utilization of psychotherapy, other interventions, and the numbers and types of prescriptions filled by members of the cohort.

Quality Measure Rates

To describe the quality of care for PTSD and depression delivered by the MHS, we computed performance rates for each quality measure. Using the detailed technical specifications described above and available in Appendixes A and B, the numerator (i.e., the process of the care recommended in the measure) and denominator (i.e., indi-

viduals eligible for the recommended care) of each quality measure were calculated from the appropriate data source (i.e., SIDR and TED-I files for inpatient care provided in MTFs or by other facilities as purchased care, CAPER and TED-NI files for outpatient care provided by direct care and purchased care providers, and PDTS for dispensed medications) during the identified 12-month observation period for each service member in 2012–2013. Each measure rate is a percentage or mean equal to the value resulting from the measure numerator being divided by the measure denominator. Note that while the period of time during which care was observed was January 1, 2012 through June 30, 2013, data from 2011 were used if needed to determine denominator eligibility (e.g., check for a “clean period” prior to the start of a new treatment episode). We also present related measure results from other health care systems and from the medical literature, where available, to provide a context for the results presented in this study.

Variations in Care Analyses

The Institute of Medicine considers equity to be one of the domains of health care quality (Institute of Medicine, 2001). Care that is equitable does not vary in quality by personal characteristics, such as gender, racial/ethnic background, and geographic location. We examined differences in quality measure rates by service branch (Army, Air Force, Marine Corps, Navy) and TRICARE region (North, South, West, Overseas). In addition, we examined variations across service member characteristics. Rates were computed for the following subgroups: age, race/ethnicity, gender, pay grade, and history of deployment at time of cohort entry. We defined age as of the time of cohort entry and created four age categories (18–24 years, 25–34 years, 35–44 years, and 45–64 years). Service members 65 years and older were not included in these analyses due to small numbers. Race/ethnicity was obtained from the Defense Manpower Data Center (DMDC) database. While we present more detailed information in describing the cohorts, we created four collapsed race/ethnicity categories to allow sufficient numbers to analyze variations: white, non-Hispanic; black, non-Hispanic; Hispanic (including white/Hispanic; black/Hispanic; American Indian or Alaskan native/Hispanic; Asian or Pacific Islander/Hispanic; and race unknown/Hispanic), and other/unknown (including American Indian/Alaskan Native; Asian or Pacific Islander; Multiracial; and Unknown). We analyzed performance for female and male service members, and four subgroups classified by pay grade: E1–E4, E5–E9, O1–O3, and O4–O6. Service members in C1, O7–O8, and warrant categories of pay grade were not included in these analyses due to small numbers. Using information about deployment from the DMDC database (Contingency Tracking System–Deployments), we compared performance between those with no deployments at the time of cohort entry and those with one or more deployments. We examined variation in performance rates by these characteristics for all measures except one. We did not examine variations for the rate of psychiatric discharges (RU1), because this measure focuses on resource use

rather than quality of care for PTSD or depression. In addition, if a significance test for this measure were performed, it would have to take into consideration patient characteristics, thus requiring risk adjustment of the rates before they were tested.

Most measures are specified so that each individual in the denominator is assigned either 0 or 1 for not having or having the care specified in the numerator, respectively. To allow for the possibility of having a small number of individuals eligible for these measures for some subgroups, we performed a Fisher's exact test to test for statistically significant differences between measure rates in these subgroups. We report multiplicity-adjusted p-values to account for the fact we are conducting a large number of statistical tests. If we were to assume the commonly used p-value cutoff of 0.05 to identify statistically significant results, we would expect 5 percent of all tests to be statistically significant by chance alone, even if in the absence of true differences. The adjusted p-values we report control the false discovery rate (the proportion of statistically significant findings that are false positives) (Benjamini and Hochberg, 1995) to be 5 percent.

Strengths and Limitations of Using Administrative Data to Assess Care for PTSD and Depression

The administrative data used for our analyses include data on every visit for every service member, delivered both at MTFs and in the civilian sector, paid for by TRICARE, the health insurance provided to active-duty service members. No other data source (e.g., medical record review, patient survey, provider survey) allows for such a comprehensive examination of all care provided by the MHS. Alternative data sources must rely on selecting and inferring from a sample. Therefore, the analyses presented in this report allow for a description of many aspects of care for a large number of service members. While the limitations described below suggest some caution when interpreting results, there are limitations associated with alternative data sources as well.

Reliance on administrative data to describe care for PTSD and depression has some limitations. First, identifying service members with PTSD and depression relies on a practitioner assigning the diagnosis in the charting system. When describing care using administrative data, we are able to observe care only for patients who have received a diagnosis. Assigning patients to a diagnostic cohort does not represent "diagnostic truth"; service members may have been assigned this diagnosis incorrectly. Alternatively, there are other service members who have PTSD or depression but have not been detected and diagnosed, because they either have not sought care or were seen and the practitioner did not identify the problem. Further, practitioners typically aim to assign a diagnosis as "primary" to indicate the focus of the visit and assign other relevant diagnoses in the secondary positions. While this can help to identify visits that likely focused on a particular diagnosis (e.g., PTSD), practitioners may deviate from this approach when dealing with multiple comorbidities or due to practitioner error.

Describing and assessing quality of care also presents challenges. Administrative data capture outpatient visits, inpatient stays, provider types and settings, diagnoses, procedure codes, and medications. Aspects of clinical decisionmaking, such as rationale for choice of interventions or notation of related contraindications that are documented by the provider only in the clinical note within the medical record are not captured. These data are important in that they may justify departures from standard care. Other important detail is also lacking in administrative data. For example, the administrative data will capture a procedure code indicating an outpatient visit was a psychotherapy visit, but we are unable to determine whether the therapy approach used during the visit was evidence based. Administrative data capture only services that were actually provided and medications for which prescriptions were filled. They do not capture occurrences when a service or medication was recommended by a provider but refused by the patient. They also do not capture instances when a prescription for a medication was written but not filled. In addition, there may be instances when the recommended treatment or medication for a condition is contraindicated or discontinued due to adverse side effects. This information is also not captured by administrative data. Therefore, in these analyses, we cannot account for treatment or medication refusals or contraindications. This likely does not affect the relative performance of subgroups as long as there are not systematic differences across subgroups with respect to treatment patterns. However, there may be certain service member characteristics associated with a higher likelihood of contraindications or refusals. For example, older service members may be treated for multiple health conditions that result in more medication contraindications due to possible adverse medication interactions than younger service members.

Finally, routine outcome monitoring of symptoms is typically absent from administrative data, so tracking the clinical course and response to treatment for a particular patient is usually not possible. In future work, we will conduct medical record review in which the contents of clinical notes are coded. Medical record review captures details of the clinical intervention including diagnostic assessments, types of psychotherapy interventions, routine outcome monitoring, and patient refusals and contraindications. Despite these limitations, this report is likely to provide one of the most comprehensive descriptions of service members diagnosed with PTSD or depression and the quality of care they receive. The performance results for the administrative data quality measures presented in this report provide a first-level assessment of the care provided to active service members with PTSD and/or depression. These data provide a basic assessment of the care received and provide a starting point for more extensive analyses to understand the complexities of the population and the care provided, including where performance was strong and where it may need improvement.

Examining the Link Between Adherence to CPGs and Clinical Outcomes

The Donabedian quality of care framework described in Chapter One suggests that clinical processes of care predict patient outcomes. We would presume that increased adherence to CPGs, as assessed by quality measures, would be associated with improved outcomes, and it is important to evaluate whether such links exist. It is possible that in certain individuals, outcomes improve even without adherence to care specified by the CPG (e.g., a certain number of psychotherapy visits), and in others, outcomes do not improve even when the specified care is provided. However, using data on the entire cohort, improved outcomes would be expected among those with higher adherence to recommended care.

The first steps in examining the link between CPGs and clinical outcomes is to select outcomes for which we believe CPGs might be linked and then to assess the availability of outcomes data, as well as its quality for such analyses. This phase of the project relied on administrative data, so we considered the following administrative data-based outcomes: separation through the medical disability system and e-profile data that document duty limitations. We consider each in turn.

Approximately 1 to 2 percent of service members are separated through the disability system (currently called the Integrated Disability Evaluation System, a system jointly administered by DoD/VA) each year, with some variation by service. Because PTSD and depression may be causes for medical separation, this is an interesting outcome to consider. Unfortunately, the data that the study team had access to do not indicate the medical condition for which the soldier was referred to the system. Therefore, we could not make a direct link between PTSD or depression (versus some other co-occurring condition that the service member may be facing) and medical separation.

Service members unable to perform their current duty occupation due to a medical condition are placed on limited duty. The Army uses profiles to document these duty limitations², and we considered measuring the percentage of patients with PTSD and depression who are placed on profiles. However, like the medical separation data, other studies that have used profile data observe when a soldier is placed on a profile and when that profile expires, but do not have visibility of the condition for which the soldier is placed on profile. Therefore, we would know only that a member of the PTSD or depression cohort was placed on duty limitations, but we would not be able to correlate the profile with the cohort condition.

Repeated assessments using symptom measures are one of the stronger approaches to assessing treatment outcomes. As noted above, outcome data using self-report symptom measures, such as the nine-item Patient Health Questionnaire (PHQ-9) for depression symptoms or the PTSD Checklist (PCL) for PTSD symptoms, are not readily accessible using administrative data. Therefore, we do not conduct analyses to evaluate

² Each of the services has a system for documenting duty limitations, but we first considered Army data because we have more familiarity with the system and ability to access these data.

the link between adherence to CPGs and clinical outcomes. In a subsequent phase of this project, we aim to conduct medical record review, which will allow us to capture scores from self-report symptom measures entered into the clinical notes. In addition, we aim to obtain data entered into the Behavioral Health Data Portal, a system separate from the clinical record that prompts clinic staff to administer and enter outcome data at specified intervals. Both of these data sources hold promise for supporting a process-outcome link analysis in the future.

Characteristics of Service Members in PTSD and Depression Cohorts, and Their Care Settings and Treatments

In this chapter, we describe the demographic and service characteristics of members of the PTSD and depression cohorts. We then describe where they receive their care, followed by the types of treatments delivered. From the time of entry into the cohort, we observed their care for 12 months, referred to as the observation period. It is important to note that results should not be interpreted as comparisons between the cohorts, in part because considerable overlap existed between them (i.e., 6,290 service members were in both cohorts, representing 43.2 percent of the PTSD cohort and 20.6 percent of the depression cohort). We do not separately report results for service members in both cohorts, but Table 3.3 displays co-occurring conditions, and we briefly describe the percentage of each cohort that has the other cohort diagnosis at some point during the observation period.

Demographic Characteristics of the PTSD and Depression Cohorts

Table 3.1 shows that the majority of the PTSD cohort was male, and nearly half were between 25 and 34 years of age. The majority was white, non-Hispanic and married. In terms of geographic location, approximately one-third resided in each of TRICARE South and TRICARE West, one-quarter resided in TRICARE North, and the remainder were overseas or in unknown locations. Only a very small portion (2 percent) was living in geographic areas considered remote according to TRICARE's definition. The same patterns held for the depression cohort (Table 3.1), although a larger percentage of the depression cohort was female, younger, and never married.

Military Service Characteristics of the PTSD and Depression Cohorts

Table 3.2 describes the military service characteristics of members of both the PTSD and depression cohorts. Army represented 71 percent of the PTSD cohort, while Air Force, Marine Corps, and Navy accounted for 10, 11, and 8 percent of the PTSD cohort. In comparison, 49 percent of all active-duty service members were Army, with

Table 3.1
Demographic Characteristics of the 2012–2013 PTSD (n = 14,576) and Depression (n = 30,541) Cohorts

Demographic Characteristic	PTSD Cohort % (n)	Depression Cohort % (n)
Gender		
Female	15.8 (2,304)	30.9 (9,447)
Male	84.2 (12,272)	69.1 (21,094)
Age at diagnosis		
18–24	16.7 (2,431)	23.8 (7,267)
25–34	46.7 (6,812)	44.7 (13,637)
35–44	31.3 (4,569)	26.6 (8,133)
45 and over	5.2 (764)	4.9 (1,503)
Race/ethnicity		
American Indian/Alaskan Native	1.3 (193)	1.4 (418)
Asian/Pacific Islander	3.7 (545)	3.9 (1,179)
Black, non-Hispanic	18.2 (2,652)	18.1 (5,531)
White, non-Hispanic	60.8 (8,868)	62.1 (18,970)
Hispanic	12.7 (1,875)	11.3 (3,457)
Multiracial/multiethnic	0.7 (97)	0.7 (208)
Unknown	2.4 (346)	2.5 (778)
Marital status		
Married	76.2 (11,109)	66.5 (20,308)
Never married	14.4 (2,104)	23.0 (7,031)
Divorced, separated, widowed	9.4 (1,363)	10.5 (3,198)
Unknown	0 (0)	0.003 (1)
Region		
TRICARE North	22.8 (3,328)	25.3 (7,727)
TRICARE South	33.1 (4,823)	29.7 (9,055)
TRICARE West	31.8 (4,640)	32.1 (9,813)
TRICARE Overseas	10.5 (1,523)	11.2 (3,428)
Unknown	1.8 (262)	1.7 (518)

Table 3.1—Continued

Demographic Characteristic	PTSD Cohort % (n)	Depression Cohort % (n)
Remote/rural		
Not remote	97.8 (14,255)	97.8 (29,862)
Remote	2.2 (321)	2.2 (679)

**Table 3.2
Service Characteristics of the PTSD (n = 14,576) and Depression (n = 30,541) Cohorts**

Service Characteristic	PTSD Cohort % (n)	Depression Cohort % (n)
Service branch		
Army	70.8 (10,321)	57.5 (17,575)
Air Force	9.8 (1,433)	18.8 (5,745)
Marine Corps	11.0 (1,601)	8.1 (2,460)
Navy	7.5 (1,094)	12.9 (3,949)
Coast Guard	0.9 (127)	2.7 (812)
Rank		
C1	0.03 (5)	0.09 (26)
E1–E4	29.1 (4,248)	37.3 (11,377)
E5–E9	61.5 (8,964)	50.7 (15,473)
O1–O3	3.6 (526)	5.5 (1,675)
O4–O6	4.3 (581)	5.4 (1,610)
O7–O8	0 (0)	0.01 (3)
Warrant	1.7 (252)	1.2 (377)
Years of service		
0–3	11.3 (1,652)	21.9 (6,675)
4–6	20.5 (2,987)	20.9 (6,388)
7–10	24.1 (3,519)	19.9 (6,082)
11–15	19.3 (2,810)	16.9 (5,156)
16–20	17.6 (2,569)	14.9 (4,565)
More than 20	7.1 (1,036)	5.5 (1,670)
Unknown	0.02 (3)	0.02 (5)

Table 3.2—Continued

Service Characteristic	PTSD Cohort % (n)	Depression Cohort % (n)
Deployment experience		
Ever deployed	91.7 (13,364)	69.8 (21,323)
Number of deployments at time of cohort entry		
None	8.3 (1,212)	30.2 (9,218)
1–3	79.6 (11,596)	63.2 (19,290)
4–6	11.7 (1,706)	6.3 (1,937)
7 or more	0.4 (62)	0.3 (96)
Months deployed at time of cohort entry		
Mean (min, max)	19.6 (0.03, 83.5)	16.3 (0.03, 84.1)
Median	17.6	12.7
Mode	11.9	11.8

26 percent Air Force, and 24 percent Navy/Marines (U.S. Census Bureau, 2012), indicating Army is overrepresented among those with a PTSD diagnosis. Enlisted service members represented 90 percent of the PTSD cohort, and 60 percent of the cohort had ten or fewer years of service at the time of cohort entry. Nearly 92 percent of the PTSD cohort had at least one deployment, and the average service member had 20 cumulative months of deployment at the time of cohort entry.

Active-duty service members in the Army represented 58 percent of the depression cohort, while service members in the Air Force, Marines, and Navy accounted for 19, 8, and 13 percent. In comparison, 49 percent of all active-duty service members are Army, with 26 percent Air Force, and 24 percent Navy/Marines (U.S. Census Bureau, 2012), indicating Army is slightly overrepresented among those with a depression diagnosis. Nearly 40 percent of the depression cohort was junior enlisted, and half were senior enlisted. About 22 percent of the cohort had three or fewer years of service at the time of cohort entry. The majority of service members in the depression cohort (70 percent) had deployment experience at the time of cohort entry, with a cumulative average of 16 months.

Utilization of Mental Health Services

Next, we explored the sources of care used to treat members of the PTSD and depression cohorts. We used this information to first describe the percentage of patients who

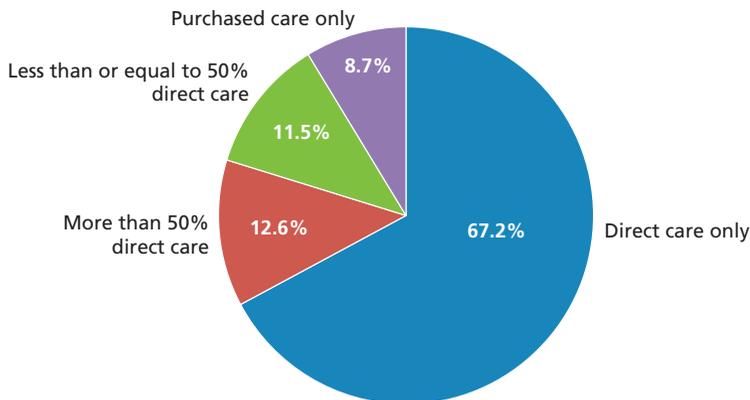
received their mental health care as direct care, purchased care, or as a combination of the two. In all patient encounter files, multiple diagnoses are recorded during each visit. In the following set of results, we considered encounters during which the cohort diagnosis (PTSD or depression) appears in any position (i.e., primary or secondary).

Figure 3.1 illustrates the sources of care associated with a PTSD diagnosis for members of the PTSD cohort. Two-thirds of the cohort received care for PTSD only at MTFs (i.e., direct care). A small proportion (9 percent) received purchased care only. Of all service members in the PTSD cohort, 25 percent received both direct care and purchased care, 13 percent received more than 50 percent direct care, and 12 percent received less than 50 percent direct care.

Among service members in the depression cohort, the majority (over three-fourths of the cohort) received care associated with a cohort diagnosis only at MTFs (Figure 3.2). A small proportion of the cohort (7 percent) received only purchased care. Of all service members in the depression cohort, 17 percent received both direct care and purchased care, 8 percent received more than 50 percent direct care, and 9 percent received less than 50 percent direct care.

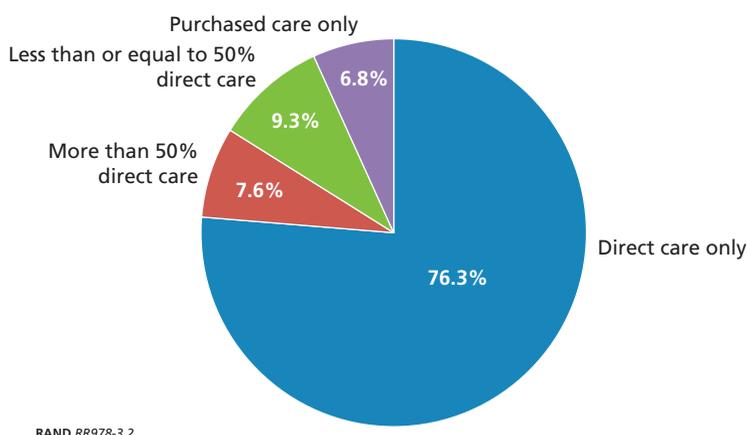
Next, combining direct and purchased care, we examined the primary diagnoses recorded during each patient encounter for members of the PTSD and depression cohorts. A total of eight to 20 diagnoses may be assigned to an encounter, and we acknowledge that the primary diagnosis may or may not reflect the primary problem addressed during the encounter. However, we defined three categories looking at the primary diagnosis:

Figure 3.1
System Used for Care Associated with a PTSD Diagnosis Among
Service Members in the PTSD Cohort



RAND RR978-3.1

Figure 3.2
System Used for Care Associated with a Depression Diagnosis
Among Service Members in the Depression Cohort



- *Primary diagnosis—PTSD/depression*: the primary diagnosis was the condition by which the service member entered the cohort (PTSD if in the PTSD cohort, depression if in the depression cohort)
- *Primary diagnosis—other PH*: the primary diagnosis was a PH condition other than the condition for which the service member was included in the cohort¹
- *Primary diagnosis—non-PH*: the primary diagnosis was a condition not included in the two categories listed above (i.e., general medical or surgical conditions or preventive care).

As expected, the majority of encounters in the PTSD cohort were for non-mental health (e.g., medical) conditions (Figure 3.3).² Yet 43 percent of all encounters were for a mental health condition, and 26 percent of all encounters included a primary diagnosis of PTSD. The pattern was similar for the depression cohort (Figure 3.4). Again, the majority of encounters were for non-mental health conditions. While approximately 40 percent of all encounters were for a mental health condition, a smaller proportion (15.5 percent) had a primary diagnosis of depression. This difference from the PTSD cohort may reflect differences in the populations, or providers may have viewed depression as less severe or as being secondary to a general medical condition, leading to reduced likelihood of coding depression as primary. This may also be influenced by

¹ ICD-9-CM codes that define “other psychological health condition” are 290.xx–319.xx, excluding the codes that define the PTSD and depression cohorts listed in Appendixes A and B.

² Our analysis did not focus on what medical conditions were co-occurring with the cohort condition. In the next section, we describe co-occurring mental health conditions, and in that discussion, we mention only one non-mental health condition (traumatic brain injury).

Figure 3.3
Primary Diagnoses for All Patient Encounters for the PTSD Cohort
Across Direct and Purchased Care

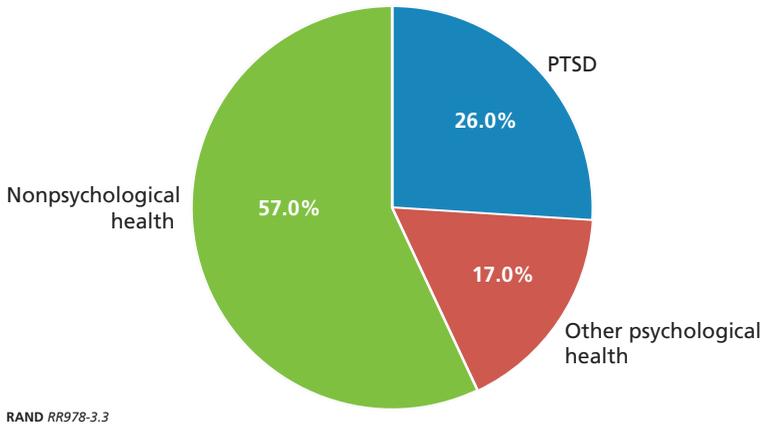
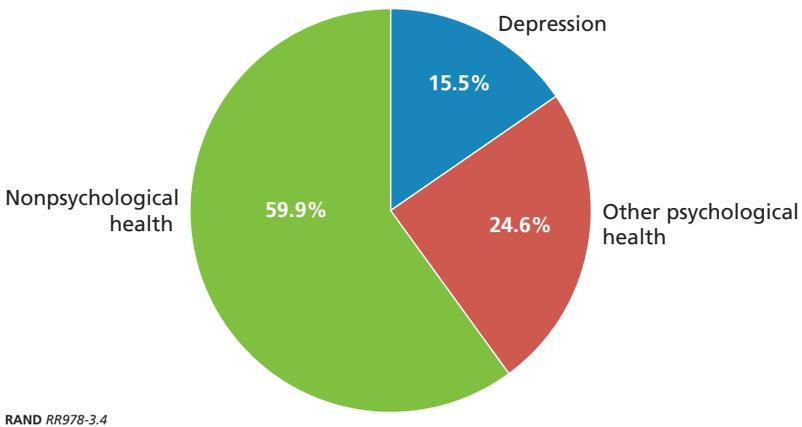


Figure 3.4
Primary Diagnoses for All Patient Encounters for the Depression Cohort
Across Direct and Purchased Care



the diagnostic code assigned to the depression, where MDD might be more likely to be assigned a primary position than other non-MDD depression diagnoses included in the depression cohort definition.

Comorbid Psychological Health Conditions

We examined the proportion of service members in each cohort who received services for other selected mental health conditions³ during the 12 months following their entry into the cohort (i.e., the observation period). Among the PTSD cohort, 61.8 percent received diagnoses of sleep disorders or symptoms during the observation period, and 56 percent received a diagnosis of depression (see Table 3.3). The number of those with comorbid depression (8,157) represents comorbidity over the entire 12-month observation period. Therefore, this number is larger than the number who also entered the depression cohort, which was limited to depression diagnoses during the six-month cohort-entry window. Anxiety disorders and adjustment disorders are also commonly

Table 3.3
Comorbid Psychological Health Conditions in the PTSD and Depression Cohorts

Diagnosis	PTSD Cohort		Depression Cohort	
	Number of Service Members	Percentage of PTSD Cohort (n = 14,576)	Number of Service Members	Percentage of Depression Cohort (n = 30,541)
Acute stress disorder	433	3.0	770	2.5
Adjustment disorders	5,856	40.2	12,860	42.1
Alcohol abuse/dependence	2,345	16.1	4,045	13.2
Anxiety disorders	6,879	47.2	12,758	41.8
Attention deficit disorder	1,203	8.3	2,679	8.8
Bipolar disorder	507	3.5	1,082	3.5
Depression	8,157	56.0	30,541	100
Drug abuse/dependence	832	5.7	1,365	4.5
Personality disorders	676	4.6	1,586	5.2
Posttraumatic stress disorder (PTSD)	14,576	100	8,480	27.8
Sleep disorders/symptoms	9,008	61.8	14,111	46.2

³ ICD-9-CM codes used to define comorbid mental health conditions were the following: acute stress disorders: 308.x; adjustment disorders: 309.xx (excludes 309.1, 309.21, 309.22, 309.23, 309.81); alcohol abuse/dependence: 305.0x, 303.xx; anxiety disorders: 300.00–300.10, 300.2x, 300.3, 300.5, 300.89, 300.9; attention deficit disorder: 314.xx; bipolar disorder: 296.0x, 296.1x, 296.4x, 296.5x, 296.6x, 296.7xx, 296.8x (excludes 296.90); depression: 296.2x, 296.3x, 293.83, 296.90, 296.99, 298.0, 300.4, 309.1, 311; drug abuse/dependence: 304.xx, 305.2x–305.9x; personality disorders: 301.xx; posttraumatic stress disorder (PTSD): 309.81; sleep disorders/symptoms: 327.xx, 347.xx, 307.4x, 780.5x.

co-occurring, with 47.2 and 41.8 percent receiving these diagnoses during the observation period, respectively. Although we focus in this section on mental health conditions, we also identified patients in the PTSD cohort whose coded diagnoses included traumatic brain injury (TBI)⁴ during the observation period. We identified 2,340 members of the cohort (16.1 percent) with a TBI diagnosis (not shown).

Similar percentages (to the PTSD cohort) of the depression cohort were diagnosed with co-occurring adjustment and anxiety disorders during the observation period. Patients in the depression cohort also received a diagnosis of sleep disorders or symptoms at a high rate (46.2 percent). More than one-quarter of the depression cohort had a diagnosis of PTSD during the observation window. Again, this number is higher than the number also in the PTSD cohort for the reasons mentioned above. Although not shown, 7.1 percent of the depression cohort was noted to have a TBI diagnosis (2,172 patients).

Treatment Setting, Encounter Characteristics, and Types of Providers Seen by PTSD and Depression Patients

Next, we evaluated the treatment setting where members of the PTSD and depression cohorts received care for PTSD or depression. Table 3.4 shows the percentage of service members in each cohort seen in each treatment setting with a PTSD or depression diagnosis assigned to the visit (in any position, primary or secondary). We opted to allow the cohort diagnosis to be in any position (rather than restricting to primary

Table 3.4
Percentage of PTSD and Depression Cohort Patients Who Received Outpatient Care Associated with a PTSD or Depression Diagnosis by Direct and Purchased Care

Outpatient Care	PTSD Cohort		Depression Cohort	
	Direct Care ^a	Purchased Care ^b	Direct Care ^a	Purchased Care ^b
Mental Health	75.0	21.4	66.4	13.3
Primary Care	50.6	4.1	51.3	3.1
Subspecialty	11.2	3.7	6.8	2.3
Emergency	3.1	1.3	6.8	2.8

^a Based on CAPER MEPRS3

^b Based on TED-NI Product Line

⁴ ICD-9-CM codes used to define traumatic brain injury (TBI) were the following: 800.xx, 801.xx, 803.xx, 804.xx, 850.xx, 851.xx, 852.0x–852.5x, 853.0x, 853.1x, 854.0x, 854.1x, 310.2, 950.1–950.3, 959.01, V80.01, V15.52.

diagnosis) because assigning a diagnosis suggests the diagnosis may have been addressed in the encounter. Further, rates of PH and medical comorbidities suggest that PTSD and depression may often be treated alongside other co-occurring conditions. Thus, it is important to note that the cohort diagnosis may not be the primary focus of the encounter. We show results separately for direct and purchased care. Individual members of the cohort may be counted in multiple cells in the table (for instance, the same patient may receive care at an MTF primary care clinic and at a mental health clinic in the community). For both cohorts, the majority of patients received cohort-related care in nonemergent mental health or primary care clinics. Three-quarters of PTSD patients visited mental health clinics at MTFs. Additionally, half of the patients in the cohort received care from MTF primary care clinics. One-fifth were seen at mental health clinics under purchased care, while few patients were seen in other settings under purchased care.

Approximately two-thirds of the depression cohort received nonemergent treatment associated with a depression diagnosis in MTF mental health clinics. Like the PTSD cohort, half of the patients in the depression cohort visited MTF primary care clinics. Across care settings, far fewer patients received care under purchased care. These results suggest that although a majority of patients in both cohorts visit MTF mental health clinics for treatment, a sizable proportion received at least some care associated with a cohort diagnosis from primary care providers as well.

Characteristics of Inpatient Stays and Outpatient Encounters

We now describe characteristics of inpatient stays and outpatient encounters among cohort patients who receive treatment in these settings. Table 3.5 describes inpatient

Table 3.5
Characteristics of Acute Inpatient Care in the PTSD and Depression Cohorts

	PTSD Cohort	Depression Cohort
Percentage of cohort patients with any inpatient care	23.1	22.2
Acute inpatient discharges per 1,000 patients, total	336	307
Primary diagnosis—PTSD/depression	103	103
Primary diagnosis—other psychological health	98	72
Primary diagnosis—non-psychological health	136	133
Acute inpatient length of stay (median days per admission)		
Primary diagnosis—PTSD/depression	23	8
Primary diagnosis—other psychological health	7	7
Primary diagnosis—non-psychological health	2	2

stays, including the percentage who had an inpatient stay, number of discharges per 1,000 in the cohort, and length of stay. Approximately one-fifth of all patients in the PTSD cohort had an inpatient stay for any diagnosis during the observation period. For every 1,000 members of the cohort, there were 336 inpatient discharges. Focusing on the primary discharge diagnosis of the stay, approximately 103 of the 336 discharges per thousand patients were for PTSD and 98 were for some other mental health condition. The remaining 136 were for non-psychological health conditions.⁵ Next, we examined the length of acute inpatient stays. For hospitalizations within the PTSD cohort and with a primary discharge diagnosis of PTSD, the median length of stay per admission was 23 days. Stays for other PH and medical diagnoses were much shorter. Finally, among all acute inpatient stays during the observation period for the PTSD cohort, two-thirds (66 percent) had a cohort diagnosis in one of the discharge diagnosis fields (primary or other; not shown).

Like the PTSD cohort, approximately one in five patients in the depression cohort had an inpatient stay during the 12-month observation period (for any diagnosis). The distribution of primary discharge diagnoses for acute inpatient stays was skewed toward non-PH conditions, but approximately one-third of the total discharges were documented as inpatient stays with a primary diagnosis of depression. Hospitalizations with a primary discharge diagnosis of depression or other PH conditions had a median length of stay per admission of eight and seven days, respectively, compared to two days per admission for non-psychological health conditions. Nearly three-fifths (57 percent) of all inpatient stays documented depression as one of the discharge diagnoses (not shown).

Table 3.6 describes the utilization of outpatient care among the PTSD and depression cohorts. In this table, we first consider all outpatient encounters, regardless of whether the visit had a diagnostic code for the condition for which the individual was included in the cohort (PTSD or depression). Outpatient encounters were counted separately based on provider type, regardless of date of service. Therefore, patients could have had more than one encounter per calendar day.⁶ Not surprisingly, all PTSD patients had at least one outpatient encounter during the 12-month observation period.⁷ The utilization of outpatient services was very high, averaging nearly one encounter per week over the course of the year. Next, by primary diagnosis, we report the median number of outpatient visits during the observation period. The median number of encounters with a primary PTSD diagnosis was ten outpatient encounters and six for encounters with other primary PH diagnoses. At the median, there were 22

⁵ Primary cohort diagnosis, other PH condition, and non-PH discharges per 1,000 do not add up to the total discharges per 1,000 due to rounding of numbers.

⁶ See Appendix C for the rules applied to counting encounters by provider type.

⁷ Recall that a requirement for inclusion in the cohort is one inpatient or two outpatient encounters, so for those without an inpatient stay, this is part of the definition of what constitutes cohort entry.

Table 3.6
Characteristics of Outpatient Care in the PTSD and Depression Cohorts

	PTSD Cohort	Depression Cohort
Percentage of patients with any outpatient encounters (any diagnosis)	100.0	100.0
Outpatient encounters (any diagnosis)		
Mean (per patient)	51.6	39.6
Median (per patient)	41	30
Number of outpatient encounters, median (per total encounters)		
Primary diagnosis—PTSD/depression	10	4
Primary diagnosis—other psychological health	6	8
Primary diagnosis—non-psychological health	22	18

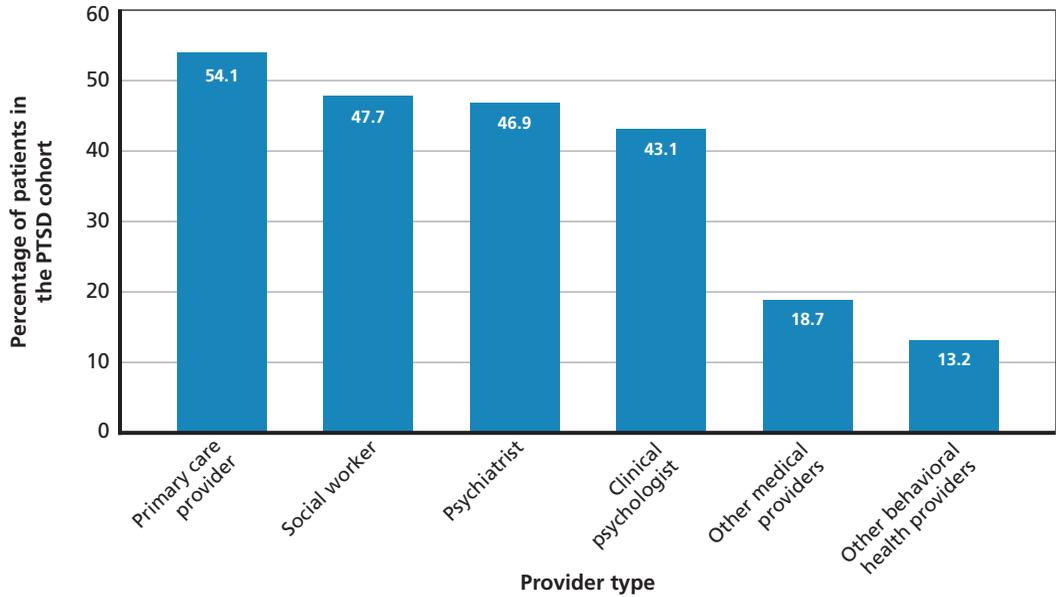
outpatient encounters where the primary diagnosis was a non-PH condition. Finally, among all outpatient encounters for the PTSD cohort over the observation period, one-third (33 percent) had a PTSD diagnosis in any position (primary or secondary) (not shown).

Turning to the depression cohort, we found that, on average, patients had almost 40 outpatient encounters for any condition during the 12-month observation period. The median number of encounters with depression as the primary diagnosis was four and another eight for other PH conditions. Non-PH (primary) diagnoses were more common, with a median of 18 over the course of the observation period. One in five (22 percent) outpatient encounters had a depression diagnosis in any position (primary or secondary) (not shown).

Types of Providers Seen by Members of the PTSD and Depression Cohorts

We now describe the types of providers who delivered the care to patients in the PTSD and depression cohorts (Figures 3.5 and 3.6). As in the analysis of treatment settings, for this analysis, we report provider type for encounters that have a cohort diagnosis in any position (primary or secondary). Both PTSD and depression cohorts saw a fairly broad mix of providers. More than half of patients in both cohorts sought care from primary care providers at visits where PTSD or depression was included as a coded diagnosis. This result is consistent with our analysis of treatment settings, which showed that over half of all patients were seen in primary care settings. Social workers, psychiatrists, and clinical psychologists each saw 43 to 48 percent of the PTSD cohort. Slightly smaller percentages of depression patients saw these mental health providers: 29 to 39 percent. Other medical providers delivered care to approximately 16 to 19 percent of cohort patients, and 10 to 13 percent of patients were seen by other mental health providers.

Figure 3.5
Percentage of Patients in the PTSD Cohort Who Received Care Associated with a PTSD Diagnosis, by Provider Type



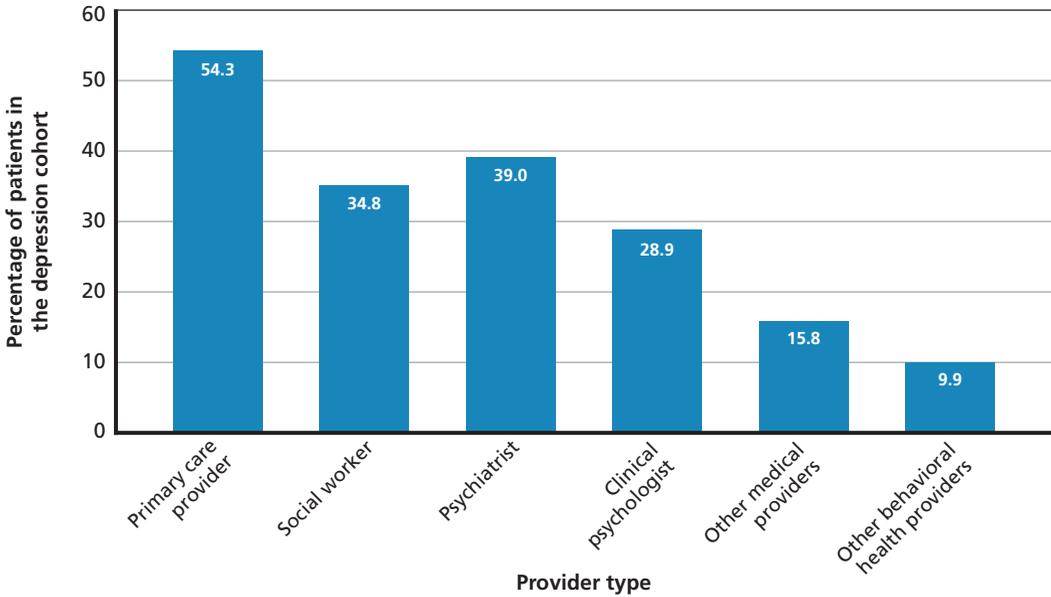
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The median number of unique providers seen by cohort patients during the observation year at encounters with a cohort diagnosis (any position) was 14 for PTSD and 12 for depression. These results suggest that patients with PTSD or depression may have sought care from multiple providers across primary and specialty care at visits where the cohort diagnosis was included among the encounter diagnoses. This highlights the importance of evaluating these patterns more thoroughly in future analyses to inform efforts to improve coordination of care and efficient management of these patients.

Assessments and Behavioral Interventions Delivered to Service Members in the PTSD and Depression Cohorts

First, we consider various types of assessments performed (for any diagnosis), as described in Table 3.7. About 78 percent of patients in the PTSD cohort and 71 percent of patients in the depression cohort received psychiatric diagnostic evaluation or psychological testing, and on average, approximately three sessions per patient. Approximately 12 percent of the PTSD cohort and 6 percent of the depression cohort received neuropsychological testing, respectively. Health and behavior assessments were performed on 14 percent of the PTSD cohort and 9 percent of the depression cohort,

Figure 3.6
Percentage of Patients in the Depression Cohort Who Received Care Associated with a Depression Diagnosis, by Provider Type



RAND RR978-3.6

while telephone assessment and management (non-physician qualified) was performed on nearly 5 percent and 3 percent, respectively.

Next, we describe selected treatments delivered to members of the PTSD and depression cohorts. We first report whether patients received any psychotherapy (asso-

Table 3.7
Percentage of Patients in PTSD and Depression Cohorts Receiving Assessments

Assessment	PTSD Cohort		Depression Cohort	
	Percentage of Patients Who Received Service	Mean Number of Sessions	Percentage of Patients Who Received Service	Mean Number of Sessions
Psychiatric diagnostic evaluation/ psychological testing	77.7	3.3	71.3	3.0
Neuropsychological testing	12.3	1.5	6.2	1.5
Health and behavior assessment	13.6	2.2	9.4	2.0
Telephone assessment and management: non-physician qualified	4.6	2.1	3.4	1.9

ciated with any diagnosis), and among those who did, we computed the number of sessions that they attended. Table 3.8 reports the percentage of each cohort that received specific types of therapy (for any diagnosis). A very high proportion of both cohorts received at least one visit that included psychotherapy—91 percent of the PTSD cohort and 82 percent of the depression cohort. Individual therapy was the most frequently used modality across both cohorts, while group therapy and family therapy were used less frequently. It is important to note that we were unable to identify from the administrative data whether the psychotherapy approach used in these encounters was consistent with clinical practice guidelines.

Next, among those who received at least one session, we report the average and median number of psychotherapy sessions received by patients in the PTSD and depression cohorts (Table 3.9). Patients in the PTSD cohort received an average of 18 and a median of 13 psychotherapy sessions (across therapy modalities), while approximately 14 of these visits had a PTSD diagnosis (in any position). Patients in the depression cohort who had received any psychotherapy received an average of 14 and a median of 9 psychotherapy sessions (across therapy modalities), while approximately eight of these visits had a depression diagnosis (in any position). These results suggest that these patients were receiving psychotherapy not only related to their cohort diagnosis, but for other conditions as well. Table 3.10 shows the frequency of sessions among patients who received psychotherapy for any diagnosis. About 20 percent of both PTSD and depression patients had nine to 15 psychotherapy sessions during the observation year, and 44 percent and 32 percent had 16 or more sessions (for PTSD and depression, respectively). About 6 percent of the PTSD cohort and 3 percent of the depression cohort had more than 50 psychotherapy sessions.

Next, we examined selected behavioral interventions received by the PTSD and depression cohorts during the observation period (Table 3.11). Only those with at least one intervention are included in the computation of the mean number of sessions. Less than 10 percent of patients in either cohort received a health and behavior intervention, education and training for self-management, acupuncture, biofeedback, or hypnotherapy, with no more than an average of about five sessions per therapy.

Table 3.8
Percentage of Patients in the PTSD and Depression Cohorts Who Received Psychotherapy

Treatment Modality	Percentage of PTSD Cohort	Percentage of Depression Cohort
Any psychotherapy	90.6	81.6
Individual psychotherapy	90.0	80.7
Group psychotherapy	27.0	18.6
Family psychotherapy	11.7	8.1

Table 3.9
Mean and Median Number of Psychotherapy Sessions in the Observation Period Among Those Who Received Psychotherapy

Treatment Modality	PTSD Cohort Number of Sessions		Depression Cohort Number of Sessions	
	Mean (SD)	Median	Mean (SD)	Median
Any psychotherapy				
Any diagnosis	18.3 (17.1)	13	13.8 (14.4)	9
Cohort diagnosis ^a	14.5 (14.9)	10	8.1 (9.3)	5
Individual psychotherapy				
Any diagnosis	15.2 (13.4)	12	11.8 (11.7)	8
Cohort diagnosis ^a	12.6 (12.1)	9	7.6 (8.6)	5
Group psychotherapy				
Any diagnosis	12.0 (13.3)	7	9.7 (11.9)	5
Cohort diagnosis ^a	11.5 (12.9)	7	5.4 (6.9)	3
Family psychotherapy				
Any diagnosis	3.8 (5.5)	2	3.8 (4.7)	2
Cohort diagnosis ^a	3.2 (4.8)	1	3.1 (4.4)	1

NOTE: Sessions were limited to one type of each therapy (e.g., individual, group, family) per date of service.

^aThe cohort diagnosis could have been recorded as a primary or secondary diagnosis. SD = standard deviation.

Prescriptions for Psychotropic Medications Filled by Service Members in the PTSD and Depression Cohorts

Next, we present results about the numbers and types of prescribed psychotropic medications that were dispensed to patients in the PTSD and depression cohorts during the 12-month observation period. We begin by describing the classes of psychotropic medications members of the cohorts received by prescription. Then we present the number of distinct medications filled by prescription across classes and within each class of psychotropic medication.

About 78 percent of the service members in the PTSD cohort filled a prescription for an antidepressant (Figure 3.7). More than half of the cohort filled prescriptions for a hypnotic/sedative/anxiolytic (including sleep medication, such as zolpidem). Within that medication category, 34.5 percent of the PTSD cohort filled at least one prescription for a benzodiazepine (not shown). The remaining types of prescribed medication classes were dispensed to less than one-third of the cohort (32 percent received

Table 3.10
Percentage of Service Members by Frequency of Psychotherapy Sessions Among Those Who Received Psychotherapy

Diagnosis	Number of Sessions							Range of Sessions
	1-4	5-8	9-15	16-25	26-35	36-50	>50	
PTSD								
Any diagnosis	20.4	15.6	20.1	18.3	11.4	8.6	5.7	1-188
Cohort diagnosis ^a	29.6	17.2	19.1	16.0	8.8	6.0	3.2	1-179
Depression								
Any diagnosis	29.3	18.8	20.3	15.6	7.9	5.2	2.9	1-189
Cohort diagnosis ^a	48.4	19.8	16.9	9.3	3.4	1.7	0.5	1-166

NOTE: Sessions were limited to one type of each therapy (e.g., individual, group, family) per date of service.

^aThe cohort diagnosis could have been recorded as a primary or secondary diagnosis.

Table 3.11
Percentage of Patients in PTSD and Depression Cohorts Receiving Other Interventions

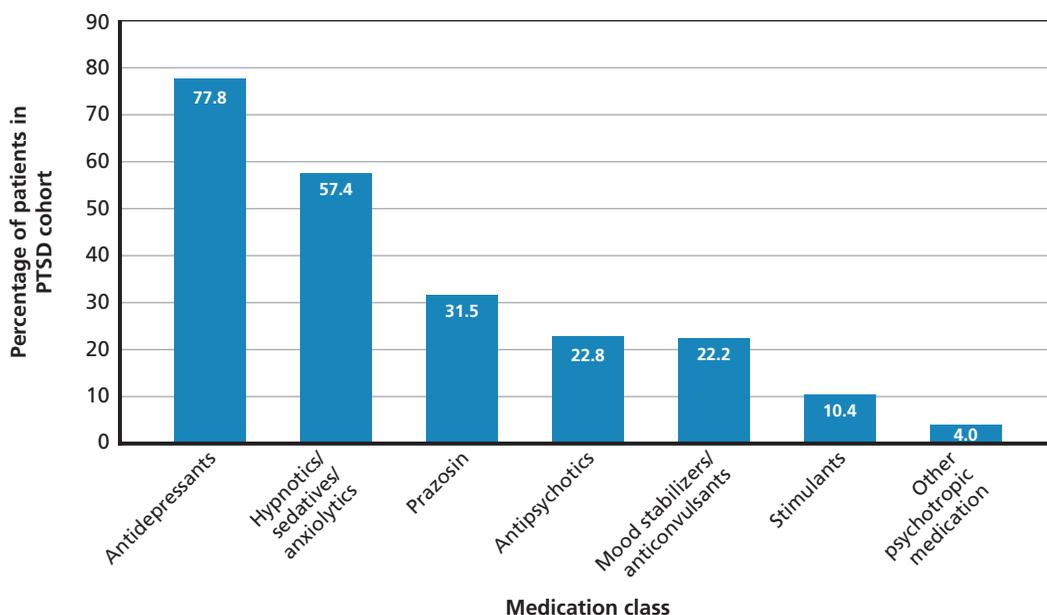
Intervention	PTSD Cohort		Depression Cohort	
	Percentage of Patients Who Received Service	Mean Number of Sessions	Percentage of Patients Who Received Service	Mean Number of Sessions
Health and behavior intervention: patient/family	7.4	3.4	4.9	3.0
Education and training for self-management: individual/group	7.8	1.9	5.3	1.6
Acupuncture	6.9	5.3	4.0	4.5
Biofeedback	6.8	5.1	3.6	4.6
Hypnotherapy	0.6	3.7	0.4	4.6

prazosin,⁸ 23 percent received antipsychotics, 22 percent received mood stabilizers/anticonvulsants, and 4 percent other psychotropic medication⁹). In addition to the psychotropic medications classes presented here, 59 percent of the PTSD cohort filled at least one prescription for an opioid (not shown).

⁸ Only 22 to 23 percent of those treated with prazosin had a concurrent diagnosis of hypertension or benign prostatic hyperplasia, suggesting that in the majority of cases, the medication was used for its psychotropic effects.

⁹ Psychotropic medications in the “other psychotropic medication” category included guanfacine and clonidine.

Figure 3.7
Percentage of Patients in the PTSD Cohort Who Filled a Prescription for Psychotropic Medication (by Medication Class)

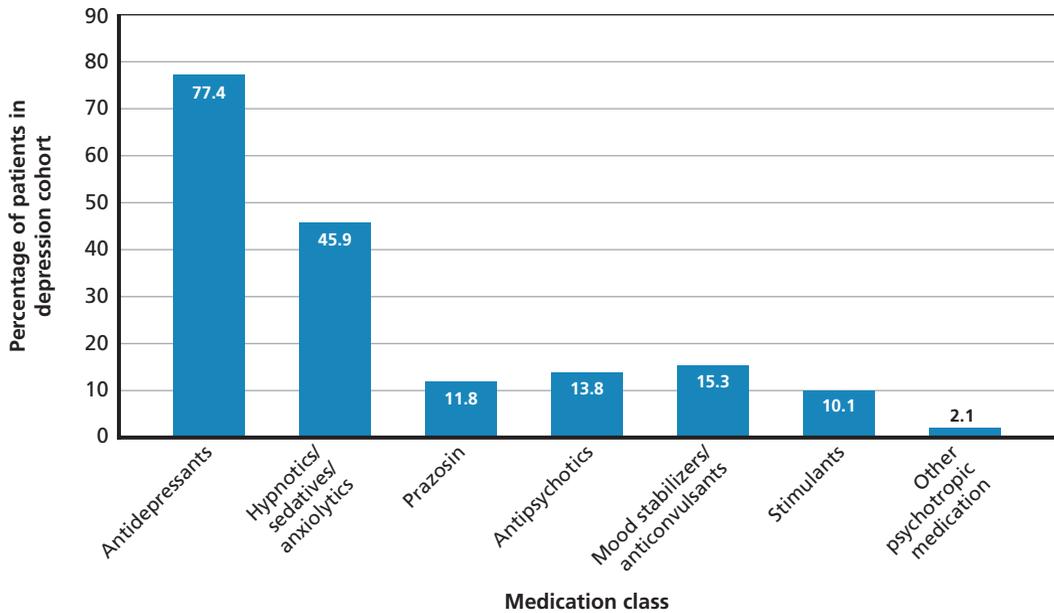


RAND RR978-3.7

Like the PTSD cohort, 77 percent of the depression cohort filled a prescription for an antidepressant (Figure 3.8). Nearly half of the cohort filled a prescription for hypnotics/sedatives/anxiolytics, with 26.2 percent of the cohort filling a prescription for a benzodiazepine (not shown). As with the PTSD cohort, the percentage of patients who filled the other types of prescriptions was much smaller (12 to 15 percent for prazosin, antipsychotics, and mood stabilizers/anticonvulsants). Ten percent of the cohort filled a prescription for a stimulant, and only a very small percentage filled other psychotropic medication prescriptions (2 percent). In addition, 52.7 percent of the depression cohort filled at least one prescription for an opioid (not shown).

These results indicate that a large proportion of the identified service members are receiving multiple types of psychotropic medications. In addition, a majority of those in both of the cohorts also filled a prescription for an opioid, and 26 to 35 percent filled a prescription for a benzodiazepine (not shown). Careful interpretation of these results, however, involves two caveats. First, there is considerable diagnostic overlap between the PTSD and depression cohorts, so the percentage of patients in each who filled these prescriptions should not be compared; many members have both diagnoses. Second, it should be noted that these analyses do not reflect an examination of longitudinal patterns of medication use, any overlap in medication regimens, the appropriateness of the prescribed regimens, or concurrent use of nonpsychotropic medications.

Figure 3.8
Percentage of Patients in the Depression Cohort Who Filled a Prescription for Psychotropic Medication (by Medication Class)



RAND RR978-3.8

Finally, we present results about the numbers of psychotropic medications filled by patients in the PTSD and depression cohorts. We begin by describing the number of distinct medications filled across classes and within each class of psychotropic medication. Then, we present the number of classes of prescriptions filled by members of the cohort.

Focusing first on the number of psychotropic medications filled across and within classes of medications, we found that 14 percent of the PTSD cohort received no psychotropic medication, 12.2 percent received only one medication, 14.5 percent received two, 14.3 percent received three, and 44.8 percent received four or more (Table 3.12). In the depression cohort, these percentages were 16.4 percent, 20.1 percent, 18.7 percent, 13.7 percent, and 31.1 percent, respectively (Table 3.13). Within Tables 3.12 and 3.13, we also consider the proportion of cohort members who filled prescriptions for different medications within the medication classes listed earlier. This analysis by class provides further examination of the patterns of psychotropic pharmacotherapy used within the cohorts and underscores the complexity of the pharmacologic regimens in both cohorts. In many cases, patients in the PTSD and depression cohorts filled prescriptions for more than one psychotropic medication within the same medication class. For example, approximately 48 percent of patients in the PTSD cohort and 42 percent of patients in the depression cohort filled prescriptions for two or more antidepressants during the observation period. Though antidepressants are the most

Table 3.12
Percentage of Patients in the PTSD Cohort Who Filled Prescriptions for Psychotropic Medications

Class of Medication	Number of Psychotropic Medications						
	0	1	2	3	4–6	7–10	11 or more
Psychotropic, all classes	14.0	12.2	14.5	14.3	29.5	13.0	2.3
Antidepressants	22.1	29.8	25.8	13.5	8.6	0.1	0
Antipsychotics	77.2	18.1	3.8	0.8	0.2	0	0
Hypnotics/sedatives/anxiolytics	42.6	31.2	16.0	6.7	3.3	0.1	0
Stimulants	89.6	8.7	1.5	0.2	0	0	–
Mood stabilizers/anticonvulsants	77.8	19.4	2.4	0.3	0	–	–
Other psychotropic medication	96.0	4.0	0.1	–	–	–	–
Prazosin	68.5	31.5	–	–	–	–	–

Table 3.13
Percentage of Patients in the Depression Cohort Who Filled Prescriptions for Psychotropic Medications

Class of Medication	Number of Psychotropic Medications						
	0	1	2	3	4–6	7–10	11 or more
Psychotropic, all classes	16.4	20.1	18.7	13.7	22.3	7.6	1.2
Antidepressants	22.6	35.2	24.2	11.5	6.4	0.1	0
Antipsychotics	86.2	11.0	2.2	0.5	0.1	0	0
Hypnotics/sedatives/anxiolytics	54.1	27.7	11.7	4.5	2.0	0	0
Stimulants	90.0	8.3	1.5	0.3	0	0	–
Mood stabilizers/anticonvulsants	84.7	13.6	1.5	0.2	0	–	–
Other psychotropic medication	97.9	2.1	0	–	–	–	–
Prazosin	88.2	11.8	–	–	–	–	–

illustrative example of potential polypharmacy within one medication class, similar examples can be found in most of the presented medication classes. A majority of these examples are demonstrated among prescriptions for two or three psychotropic medi-

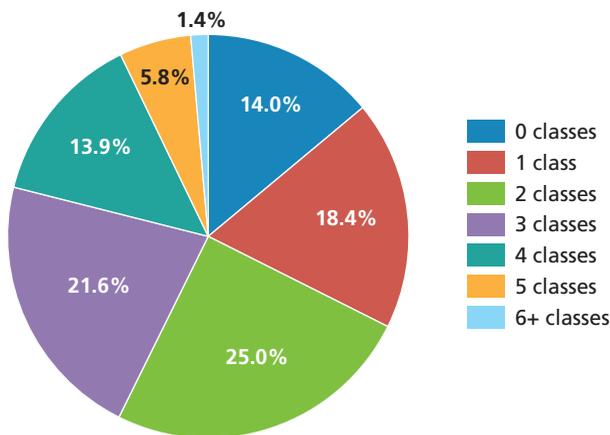
cations within the same class, as very few patients filled prescriptions for more than three drugs within a single class. Again, these summaries do not take into account the appropriateness of the regimens or concurrent use of nonpsychotropic medications. A more detailed set of analyses needs to be conducted to assess the appropriateness of these complex patterns of pharmacotherapy.

Next, we present an analysis of the number of psychotropic classes of medication from which patients in the cohorts filled prescriptions during the 12-month observation period, as presented in Figures 3.9 and 3.10. Approximately one in six members of each cohort filled no prescriptions for psychotropic medication. About 18 percent of the PTSD cohort and 26 percent of the depression cohort filled prescriptions from only one psychotropic medication class. One-quarter of each cohort filled prescriptions from two different classes. Nearly 43 percent of the PTSD cohort and 23 percent of the depression cohort filled prescriptions from three or more classes of psychotropic medications. While these results do not address the appropriateness of the prescribing for these patients, they suggest that many patients are receiving multiple psychotropic medications, potentially increasing the complexity of their care and highlighting the need for prescribing providers to carefully manage psychotropic pharmacotherapy.

Summary

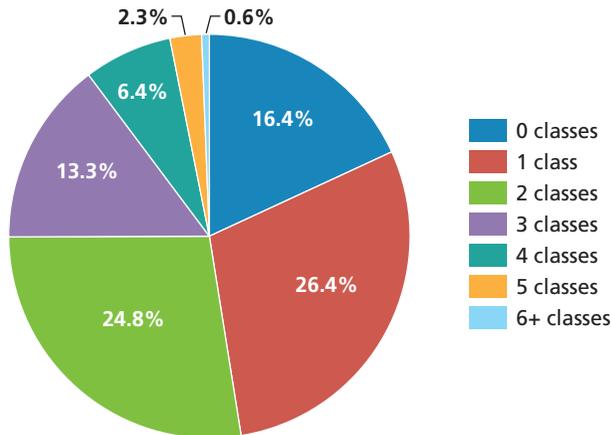
In this chapter, we provided a descriptive overview of service members identified for PTSD and depression cohorts. The results presented in this chapter are not quality measures, but rather a description of the care utilized by the service members in the

Figure 3.9
Percentage of Patients in the PTSD Cohort Who Filled a Prescription from Different Psychotropic Medication Classes



RAND RR978-3.9

Figure 3.10
Percentage of Patients in the Depression Cohort Who
Filled a Prescription from Different Psychotropic
Medication Classes



RAND RR978-3.10

PTSD and depression cohorts. We described their demographic and military service characteristics, the settings in which they received health care services, the characteristics of those health care encounters, and the providers who treated them. Finally, we described the types of assessments and treatments they received, including behavioral interventions and medications. We summarize our findings below.

The majority of both the PTSD and depression cohorts were soldiers, enlisted (versus officer), and had experienced at least one deployment. Demographically, they were more likely to be male, age 34 or younger, white, and married. Though the PTSD and depression cohorts were similar in demographics and professional characteristics, patients in the depression cohort were more slightly more likely than PTSD patients to be female, younger, and never married, and less likely to have ever been deployed. It should be noted there is significant overlap in the patients included in each cohort.

A majority of patients in both the PTSD and depression cohorts received care associated with a cohort diagnosis only at MTFs, while a small proportion of each cohort received only purchased care. Patients who received both direct and purchased care accounted for a moderate proportion of each cohort, though most of the care delivered in this mix was at MTFs. Members of both cohorts received care through the observation period that was associated with diagnoses other than only the condition for which they were a member of the cohort (PTSD or depression). Nearly 60 percent of all primary diagnoses coded for direct and purchased care encounters were for non-PH diagnoses, although our analysis did not explore the specific non-psychological health conditions for which members of the cohorts received care. The most common co-occurring PH conditions across both cohorts were adjustment and

anxiety disorders and sleep disorders or symptoms. Though patients from both cohorts saw a broad mix of providers, the largest percentage of patients saw primary care and mental health care providers (primarily psychiatrists, clinical psychologists, and social workers) for care associated with a cohort diagnosis. Results suggest that patients with PTSD or depression may be seen by multiple providers across primary and specialty care, highlighting the importance of evaluating these patterns more thoroughly in future analyses to inform efforts to improve coordination of care and efficient management of these patients. Most patients from both cohorts received at least some care associated with a cohort diagnosis within mental health care settings. Approximately 20 percent of patients from each cohort had at least one inpatient stay (for any diagnosis), with approximately two-thirds of these inpatient stays including a cohort diagnosis (primary or secondary) among the discharge diagnoses.

More than two-thirds of patients in both cohorts received psychiatric diagnostic evaluation or psychological testing, while other testing and assessment methods, including neuropsychological testing and health and behavior assessment, were utilized with less frequency. A high proportion of patients in both cohorts received at least one visit of psychotherapy (individual, group, or family therapy)—approximately 90 percent of the PTSD cohort and 81 percent of the depression cohort. For both cohorts, individual therapy was received most frequently, while family therapy was received least often. Among those patients who received psychotherapy, patients in the PTSD cohort received an average of 18 psychotherapy sessions (across therapy modalities), while approximately 14 of these visits had an associated PTSD diagnostic code (in any position). Patients in the depression cohort received an average of 13 psychotherapy sessions, while approximately eight of these visits had an associated depression diagnostic code. Among patients who received psychotherapy for any diagnosis, 20 percent of both PTSD and depression patients had nine to 15 psychotherapy sessions during the observation year, and 44 percent and 32 percent had 16 or more sessions (for PTSD and depression, respectively). About 6 percent of the PTSD cohort and 3 percent of the depression cohort had more than 50 psychotherapy sessions. While there is certainly a range of visits at the individual patient level, these results suggest at least some patients are receiving an adequate number of visits to allow delivery of a therapy approach consistent with clinical practice guidelines. Additional interventions examined (e.g., health and behavior interventions, education and training for self-management, acupuncture, hypnotherapy) were received at relatively low rates when compared to psychotherapy.

Even though approximately one in six members of each cohort did not fill any prescriptions for psychotropic medication, a majority of patients in both the PTSD and depression cohorts did. Among types of psychotropic medications dispensed, antidepressants were the most commonly filled prescriptions in both cohorts, while stimulants were the least. In many cases, patients in the PTSD and depression cohorts filled prescriptions for more than one psychotropic medication across different medication classes or within the same medication class. One-quarter of each cohort had prescrip-

tions from two different classes, while nearly 43 percent of the PTSD cohort and 23 percent of the depression cohort filled prescriptions from three or more classes of psychotropic medications. Additionally, a notable proportion of patients in each cohort filled prescriptions for two or more psychotropic medications within the same class. These results suggest that patients in both cohorts received a wide range of psychotropic medications. Also, 35 percent of PTSD patients and 26 percent of depression patients filled a prescription for a benzodiazepine, and a majority of both cohorts filled a prescription for an opioid (not shown). These medications were in addition to any other nonpsychotropic medications used that were not included in these analyses. Further analysis is warranted to explore the nature and appropriateness of these complex patterns of pharmacologic care.

Quality of Care for PTSD and Depression

In this chapter, we present the results of analyses focused on the processes of care provided to active-component service members for PTSD and depression using the quality measures outlined in Chapter One and detailed extensively in Appendixes A and B. We analyzed administrative data that represent care provided in the inpatient and outpatient settings, including both direct care provided by MTFs and purchased care provided outside of MTFs, but paid for by the MHS.

In the following sections, we present the results of our evaluation of processes of care for the two conditions, PTSD and depression. Each quality measure focuses on the subset of patients who met the eligibility requirements as specified in the measure denominator. As a result, 41 percent of the PTSD cohort and 47 percent of the depression cohort were included in at least one quality measure denominator (other than RU1). The presentation of quality measures has been divided by condition, with the quality measure results for PTSD described first, followed by those for depression. We present results for the MHS as a whole, including comparative results from other health care systems, and then evaluate variations by service branch and TRICARE region. Chapter Two of this report describes the methods used in this analysis, including the sources of data used to populate the quality measures, identification of the cohorts of veterans for which performance is assessed, and the methods used to assess performance among the subgroups of active-component service members.

Quality Measure Results for PTSD

Duration of SSRI/SNRI Treatment (PTSD-T5)	
Measure statement	Percentage of PTSD patients with newly prescribed SSRI/SNRI medication for ≥ 60 days.
Numerator	PTSD patients who fill new prescription for an SSRI/SNRI for ≥ 60 days.
Denominator	Patients with PTSD with a new filled prescription for an SSRI/SNRI.

Measure Overview

This measure assesses whether patients with PTSD who are newly prescribed an SSRI/SNRI receive a minimum of a 60-day supply over an 80-day period. It is adapted from a measure in the VA Mental Health Program Evaluation (Sorbero et al., 2010; Watkins et al., 2011). The measure is based on a recommendation in the VA/DoD Clinical Practice Guideline (Department of Veterans Affairs and Department of Defense, 2010) that medication side effects and response to medication be monitored for a minimum of eight weeks before a clinician proceeds to a new treatment trial for nonresponsive patients. Recommendations in the Society for Traumatic Stress Studies guidelines (Benedek et al., 2009; Foa, Keane, and Friedman, 1999) and the American Psychiatric Association guidelines (American Psychiatric Association, 2004) also support the measure. Randomized controlled trials and meta-analyses of the results of those trials support the use of an SSRI/SNRI as a first-line agent for the treatment of PTSD (Brady et al., 2000; Davidson, Rothbaum, et al., 2001; Foa, Davidson, and Frances, 1999; Jonas et al., 2013; Stein, Ipser, and Seedat, 2009), as does a recent IOM report (Institute of Medicine, 2012). (For more detail, see Appendix A.)

Measure Results

Almost 70 percent of active-component service members with a new prescription for an SSRI/SNRI filled prescriptions for at least a 60-day supply, based on pharmacy claims in the PDTS file (Table 4.1). Of those who failed the measure, 52 percent received a 30-day supply, 19 percent received 31–45 days of medication, and 20 percent received more than 45 days but less than 60 days. The vast majority of the patients in

Table 4.1

Percentage of Eligible Active-Component Service Members in the PTSD Cohort with at Least a 60-Day Supply of SSRI/SNRI Among Those with a New Prescription, 2012–2013

Prescription	Numerator	Denominator	Measure Rate
60-day supply of SSRI/SNRI	1,603	2,292	69.9%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

the denominator (77 percent) received less than or equal to a 30-day supply of medication at the first prescription fill. Because these results were based solely on administrative data, it is not possible to know how many of the cases that failed the measure may have discontinued the medication early for justified reasons (e.g., adverse side effects). It is also possible that dispensed medication may have been supplemented with professional samples that would not have been counted in the total days' supply. This measure is limited to evaluating the days' supply dispensed and does not take into account medication that may have been discontinued after dispensing.

Comparative Results from Other Sources

Two studies of veterans with a diagnosis of PTSD have estimated rates for similar measures, although they are not directly comparable. Among 239 veterans with a diagnosis of PTSD who had a new treatment episode for PTSD (regardless of whether they had initiated treatment with an SSRI/SNRI) in 2007–2008, 27.9 percent received a trial of SSRI for 60 days or more, or had a documented reason for discontinuing SSRI treatment in less than 60 days (Farmer et al., 2010). In another study of 264 veterans newly diagnosed with PTSD and prescribed an SSRI/SNRI in 2006–2008 (Shin et al., 2014), 32 percent were prescribed at least a 90-day supply of an SSRI or SNRI. Both of these studies reported much lower rates of having a minimum trial of SSRI/SNRI than we found for a having a 60-day trial. In the study by Shin et al. (2014), the minimum days' supply assessed by the measure (90 days) was longer than the days' supply specified in our measure (60 days).

The study by Farmer et al. (2010) was based on medical record review and allowed patients with a reason for discontinuing the medication to be counted in the numerator, which likely elevates the pass rate compared to our measure, which relies only on administrative data. However, that measure assessed whether a trial of an SSRI/SNRI occurred for all newly diagnosed cases of PTSD, rather than focusing only on an adequate trial for those who received a prescription as we do in our measure. Therefore, both of the measure definitions differed from the measure in the current study. Assessing quality of care among those who initiated medication does not include patients who opt not to receive medication (e.g., receive psychotherapy alone as a first-line treatment). This measure is intended to assess whether, once providers prescribe an SSRI/SNRI, these patients receive an adequate trial to assess the value of the medication, but there are limitations in that inference (e.g., individuals may prefer to stop due to early side effects, use of samples). Thus, this measure is best used as a descriptive measure to assess variation across sites and providers regarding their medication practices. Such a variation analysis would be followed by more qualitative methods with high and low performers to better understand the reasons for the variation.

Follow-Up of New Prescription for SSRI/SNRI (PTSD-T6)	
Measure statement	Percentage of PTSD patients newly prescribed an SSRI/SNRI with follow-up visit within 30 days
Numerator	PTSD patients who have a follow-up visit within 30 days of the new prescription for an SSRI/SNRI
Denominator	Patients with PTSD with a new prescription for a SSRI/SNRI

Measure Overview

This measure assesses whether a follow-up evaluation and management visit occurs within 30 days of a patient filling a new prescription for an SSRI/SNRI. This is a newly developed measure that will require validation. The 30-day follow-up window is thought to represent an adequate time period of the SSRI/SNRI therapy, allowing the provider to make a determination of initial response and evaluate side effects experienced by the patient (Department of Veterans Affairs and Department of Defense, 2010). The follow-up visit provides an opportunity to titrate dosage, substitute a different SSRI or SNRI, or discontinue pharmacological treatment, as well as provide additional information and support for the patient to enhance patient engagement and adherence. We selected the 30-day time period based on clinical judgment because empirical evidence is not available to support a specific time period. Although there is clear evidence that antidepressant medications are associated with symptom reduction (Fournier et al., 2010), one-third of patients will discontinue treatment within a month of receiving the prescription (Simon, 2002). For this reason, it is important for providers to maintain contact with patients in order to assess side effects and barriers to medication adherence and treatment engagement. This measure has the limitation of counting selected psychotherapy visits with “medical evaluation and management services” in the numerator, but not counting other psychotherapy visits. (For more detail, see Appendix A.)

Measure Results

Approximately 45 percent of active-component service members in the PTSD cohort who filled a new prescription for SSRI/SNRI had an evaluation and management (E&M) follow-up visit within the next 30 days, based on our analysis of administrative data (Table 4.2). The denominator for this measure is less than that for T5 due to denominator exclusions (see Appendix A for details). The mean time to the E&M visit for cases that passed this measure was 16.6 days (range: 1–30). For those cases that failed the quality measure, 10 percent had a follow-up E&M visit between 31 and 45 days and another 6 percent had a follow-up E&M visit between 46 and 60 days. Of those patients who passed the measure and had a follow-up E&M visit within 30 days of the new prescription, 73 percent saw a mental health provider at the qualifying follow-up visit. One consideration when interpreting this measure is that phone, email,

Table 4.2
Percentage of Eligible Active-Component Service Members in the PTSD Cohort with a Follow-Up Visit Within 30 Days Among Those with a New SSRI/SNRI Prescription, 2012–2013

Follow-Up After New Prescription	Numerator	Denominator	Measure Rate
Visit within 30 days	1,031	2,272	45.4%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

and care manager visits (if not coded as an evaluation and management visit) did not qualify for the follow-up visit.

Comparative Results from Other Sources

Results for similar measures are not available from other studies for comparison. However, implementation of this measure would allow comparison of rates over time and across sites/providers within DoD.

Psychotherapy for New Treatment Episode (PTSD-T8)	
Measure statement	Percentage of PTSD patients in a new treatment episode who received any psychotherapy within four months
Numerator	Patients in the denominator who receive any psychotherapy within four months following the start of a new treatment episode
Denominator	Patients in a new treatment episode of PTSD

Measure Overview

This measure assesses whether a patient with a diagnosis of PTSD in a new treatment episode had a visit for psychotherapy within four months. It was modified from a measure used in the VA Mental Health Program Evaluation (Farmer et al., 2010; Sorbero et al., 2010; Watkins et al., 2011). This measure is consistent with VA/DoD Clinical Practice Guidelines for Management of Post-Traumatic Stress (Department of Veterans Affairs and Department of Defense, 2010), which recommends trauma-focused psychotherapy (which includes components of exposure and/or cognitive restructuring) or stress inoculation training. Similarly, the American Psychiatric Association practice guidelines recommend that cognitive behavioral therapy be considered a first-line treatment option for PTSD (American Psychiatric Association, 2004). Although there is substantial evidence suggesting that certain types of psychotherapy are effective as the primary or adjunct treatment for PTSD, this indicator does not capture the type of psychotherapy offered (i.e., evidence-based or not), nor whether the patient may have chosen to decline an offer of psychotherapy. Further, the threshold for success on the measure is met after a single psychotherapy session, which is unlikely to be adequate to

achieve a response. For these reasons, this indicator should be used descriptively only. (For more detail, see Appendix A.) This measure is intended to assess whether patients are receiving a recognized first-line treatment for PTSD, but as noted above, there are limitations in that inference. Thus, it is best used as a descriptive measure to assess variation in performance across sites and providers regarding the utilization of psychotherapy. Such a variation analysis would be followed up by more qualitative methods with high and low performers to better understand the reasons for the variation.

Measure Results

About three of four active-component service members in the PTSD cohort received psychotherapy within four months of a new treatment episode, based on our analysis of administrative data (Table 4.3). Of the 796 patients who failed this measure, 10.8 percent first had psychotherapy in four to six months after the start of the new treatment episode, and another 14.3 percent first had psychotherapy more than six months later. Of those who failed the measure, 141 patients received a 60-day supply of an SSRI/SNRI during the four-month measurement period, suggesting that approximately 78 percent of the denominator received either some psychotherapy or an appropriate course of medication.

Comparative Results from Other Sources

The rate of receiving psychotherapy after a new treatment episode for PTSD among veterans and active-duty service members varies in the literature depending on length of follow-up and other factors. Of veterans with a new treatment episode for PTSD, 39 percent received some counseling during the six months after diagnosis in 2004–2005 (Spoont et al., 2010). Of veterans with a new treatment episode for PTSD, 53.5–55.2 percent received some psychotherapy in the six months after diagnosis in 2008–2010 (Schnurr et al., 2013). Of veterans newly diagnosed as having PTSD, 45 percent received PTSD-related psychotherapy in a 12-month period in 2006–2008 (Shin et al., 2014). Of post-deployment service members with a new treatment episode for PTSD within six months of deployment, 22 percent had at least one visit with a mental health professional in a 12-month period in 2010–2011 based on medical record review (Hoge et al., 2014). Based on an analysis of FY 2007 VA administrative data, 43.1 percent of veterans with a PTSD diagnosis received any psychotherapy within four months of a

Table 4.3
Percentage of Eligible Active-Component Service Members in the PTSD Cohort with Any Psychotherapy Within Four Months of a New Treatment Episode, 2012–2013

Treatment After NTE	Numerator	Denominator	Measure Rate
Psychotherapy within four months	2,181	2,977	73.3%

NOTE: NTE = new treatment episode. Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

new treatment episode (Sorbero et al., 2010). The rates among patients in these studies are much lower than the rate we observed among active-component service members in the current study, which was 73.3 percent, based on 2012–2013 administrative data. Several differences between these studies and the current study may have contributed to the lower rates of psychotherapy, including variable measurement periods, care systems, characteristics of the patients, and the definition of a new treatment episode.

Receipt of Care in First Eight Weeks (PTSD-T9)	
Measure statement	Percentage of PTSD patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks
Numerator	Patients in the denominator who receive four psychotherapy visits or two evaluation and management visits within eight weeks of a new treatment episode
Denominator	Patients in a new treatment episode of PTSD

Measure Overview

This measure assesses whether a patient with a diagnosis of PTSD in a new treatment episode had four psychotherapy visits or two evaluation and management visits within the first eight weeks. This measure was developed for this project to assess receipt of a minimally appropriate level of care for PTSD patients entering a new treatment episode. The specification of four psychotherapy visits within eight weeks is consistent with a recommendation in the VA/DoD PTSD clinical practice guideline (Department of Veterans Affairs and Department of Defense, 2010), although a particular number of sessions in this time frame is not mentioned. This metric is also consistent with technical specifications used in the VA Mental Health Program Evaluation (Horvitz-Lennon et al., 2009). An alternate level of care of two evaluation and management visits for the purpose of medication management is recommended by the VA/DoD practice guidelines (Department of Veterans Affairs and Department of Defense, 2009). (For more detail, see Appendix A.)

Measure Results

Almost 34 percent of active-component service members with a diagnosis of PTSD received four psychotherapy visits or two evaluation and management visits within eight weeks of the start of a new treatment episode, based on our analysis of administrative data (Table 4.4). The denominator for this measure is less than that for T8 due to denominator exclusions (see Appendix A for details). Of those passing the measure, 54.9 percent passed based on the basis of four psychotherapy visits, 26.7 percent passed with two E&M visits, and 18.3 percent passed based on having both psychotherapy and E&M visits.

Table 4.4
Percentage of Eligible Active-Component Service Members in the PTSD Cohort with Four Psychotherapy Visits or Two Evaluation and Management Visits Within Eight Weeks of a New Treatment Episode, 2012–2013

Treatment After NTE	Numerator	Denominator	Measure Rate
Four psychotherapy visits or two evaluation and management visits within eight weeks	990	2,944	33.6%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

Comparative Results from Other Sources

Other studies looking at the nature and frequency of follow-up care with a new treatment episode of PTSD used varying protocols for the number of psychotherapeutic visits in a particular time frame, making comparisons difficult. Of veterans with a new treatment episode for PTSD, 6.1–8.3 percent received nine or more psychotherapy visits in the 15 weeks after diagnosis in 2008–2010 (Schnurr et al., 2013). Of veterans newly diagnosed as having PTSD, 8 percent received eight or more PTSD-related psychotherapy visits in the first 14 weeks after diagnosis in 2006–2008 (Shin et al., 2014). Of veterans with a new treatment episode for PTSD who had received some counseling, 24 percent received at least eight counseling visits in the six months after diagnosis in 2004–2005 (Spoont et al., 2010). Of postdeployment service members with a new treatment episode for PTSD within six months after returning from deployment, 41 percent had eight or more visits with a mental health professional in a 12-month period after diagnosis in 2010–2011 based on medical record review (Hoge et al., 2014). Proposed standards of what type and frequency of care are recommended for patients in a new treatment episode vary, but measured performance in these cited studies was generally low.

Follow-Up After Hospitalization for Mental Illness (PTSD-T15a and PTSD-15b)	
Measure statement	Percentage of psychiatric inpatient hospital discharges of patients with PTSD with follow-up: <ul style="list-style-type: none"> • Within seven days of discharge (T15a) • Within 30 days of discharge (T15b)
Numerator	Inpatient discharges in the denominator where the inpatient discharge was followed with an outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner: <ul style="list-style-type: none"> • Within seven days of discharge (T15a) • Within 30 days of discharge (T15b)
Denominator	Patients with PTSD discharged from an acute inpatient setting with primary mental health diagnosis

Measure Overview

This measure assesses whether follow-up occurred within specified periods of time after discharge (i.e., seven and 30 days) for a hospitalization with a mental health discharge diagnosis among patients with a diagnosis of PTSD. This is an NQF-endorsed measure that is also part of the National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) 2013 measure set (National Committee for Quality Assurance, 2013a), although the HEDIS measure is not restricted to PTSD patients. The 2010 VA/DoD Clinical Practice Guideline for PTSD (Department of Veterans Affairs and Department of Defense, 2010) refers to the potential use of case management to coordinate and increase continuity of care. Research evidence also supports this measure. Missed appointments and similar disengagement from mental health services may lead to exacerbation of psychiatric symptoms, repeated hospitalizations, first-episode or recurrent homelessness, violence against others, and suicide (Dixon et al., 2009; Fischer et al., 2008; Mitchell and Selmes, 2007; U.S. Government Accountability Office, 2014).

Measure Results

Among the PTSD cohort, 85.7 percent and 95.3 percent of active-component service members with a diagnosis of PTSD discharged with a primary mental health diagnosis had follow-up within seven days and 30 days, respectively, based on our analysis of administrative data (Table 4.5). Of those who passed the measure at the seven-day level, 39.4 percent had their follow-up visit on the day of discharge, and 32.3 percent had the visit one day after discharge. A total of 84.5 percent of patients had their follow-up visit within 72 hours of discharge. Of patients who passed the 30-day measure, 95.6 percent had their first follow-up within 14 days of discharge and 98.4 percent within 21 days.

Comparative Results from Other Sources

Rates of follow-up after a mental health hospitalization are available for several populations based on analyses of administrative data. Among veterans with a PTSD diagno-

Table 4.5
Percentage of Eligible Active-Component Service Members in the PTSD Cohort with Follow-Up Within Seven Days and 30 Days of Discharge Following a Mental Health Hospitalization, 2012–2013

Follow-up After Hospitalization	Numerator	Denominator	Measure Rate
Within seven days	1,746	2,037	85.7%
Within 30 days	1,942	2,037	95.3%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

sis, follow-up after a mental health hospitalization was reported as 51.3 percent within seven days and 82.1 percent within 30 days in FY 2007 (Sorbero et al., 2010). This study, however, looked at a somewhat different set of inpatient psychiatric diagnoses and included only the first mental health discharge during the measurement period. Another two studies reported rates based on hospitalized patients with any mental health diagnosis, not restricted to PTSD. In a recent review of the MHS, rates of follow-up after discharge from mental health hospitalizations in 2013 were 58.5 percent within seven days and 74.8 percent within 30 days for MTFs, and 34.4 percent within seven days and 57.4 percent within 30 days for hospitals in the purchased care network (Department of Defense, 2014b). Based on 2013 data for an NQF-endorsed measure (follow-up after hospitalization for mental illness [NQF 0675]) (National Quality Forum, 2013a), rates of follow-up within seven days after a mental health hospitalization were reported as 54.6 percent/49.8 percent, 42 percent, and 34.5 percent/33.5 percent, and within 30 days after a mental health hospitalization were 72.8 percent/69 percent, 60.9 percent, and 53.5 percent/56 percent for commercial plans (health maintenance organization/preferred provider organization [HMO/PPO]), Medicaid, and Medicare patients (HMO/PPO), respectively (National Committee for Quality Assurance, 2014).¹ The NQF-endorsed measure denominator definition includes discharges of patients age six years and older. All of these follow-up rates are substantially lower than the rates observed in the current study (85.7 percent and 95.3 percent within seven days and 30 days, respectively). Additionally, the NCQA website notes that performance on this measure is one of the 11 measures that has shown a decline in performance over the past three to five years. Higher rates in the current study may be explained by restriction of our study sample to active-component service members with PTSD, whereas the other studies were either only civilian patients (National Quality Forum, 2014), or all patients hospitalized in MTFs or TRICARE

¹ The NCQA specifications for the numerator of this measure do not currently include code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]). However, this code was included in the current study's applied definition of the numerator given the common use of prescribing clinical psychologists in the MHS.

network hospitals, meaning a mix of military members and civilian patients with any mental health diagnosis (Department of Defense, 2014b). The veteran sample (Sorbero et al., 2010) was more similar, with only patients with a diagnosis of PTSD; however, these data were from an earlier time period (FY 2007). It is possible that the higher rates of follow-up after mental health hospitalization may be the result of a 2011 MHS mandate providing guidance for response to missed behavioral health appointments due to no-show, cancellation, or refusal to schedule. The guidance included notification of commanding officers in circumstances of higher-risk noncompliance, including follow-up after discharge from inpatient mental health care (Department of the Army, 2011). There is continued interest in this measure by the MHS as an important target for improved performance, as evidenced by a 2014 memo that directed follow-up for a mental health inpatient admission to occur within 72 hours of discharge and avoidance of weekend or federal holiday discharges without prior approval to facilitate meeting this target (Department of the Army, 2014). The high rates of follow-up in the cohort may merit study of the mechanisms used by the MHS in achieving this level of success. Some strategies may be generalizable to the other systems of care. In addition, a study of whether these high rates of follow-up improve outcomes would be informative, including the impact of a same-as-discharge-day follow-up versus a follow-up after the day of discharge.

Rate of Psychiatric Inpatient Discharges Among Patients with PTSD (PTSD-RU1)	
Measure statement	Number of psychiatric discharges per 1,000 patients with PTSD
Numerator	Number of psychiatric discharges during the measurement period for patients in the denominator
Denominator	Number of patients with PTSD divided by 1,000

Measure Overview

This measure is the rate of hospital discharges with a psychiatric diagnosis among patients with PTSD. It was developed in response to recommendations of an expert panel for monitoring post-deployment health (Department of Defense, Deployment Health Clinical Center and Post-Deployment Health Guidance Expert Panel, 2001). A similar measure was used in the VA Mental Health Program Evaluation (Sorbero et al., 2010). This measure of inpatient utilization relates to the recommendation in the 2010 VA/DoD Clinical Practice Guideline about when inpatient psychiatric care is appropriate (Department of Veterans Affairs and Department of Defense, 2009). These guidelines recommend inpatient care when the symptoms of a PH condition are severe, or when the patient poses a threat to himself, herself, or others. Research evidence does not exist to support use of this measure to monitor the rate of psychiatric hospitalizations over time, and there is not a benchmark for the appropriate rate of

Table 4.6
Annual Rate of Psychiatric Discharges (per 1,000) Among Eligible Active-Component Service Members in PTSD Cohort, 2012–2013

	Numerator	Denominator	Rate per 1,000
Rate of psychiatric discharges	2,917	14,576	200

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a PTSD diagnosis between January and June 2012.

psychiatric discharges in patients with PTSD. Thus, this measure is best used descriptively to assess variation in performance across sites and providers regarding the rate of inpatient admissions for mental health diagnoses in patients with a PTSD diagnosis. Such a variation analysis would be followed up by more qualitative methods to better understand the reasons for the variation.

Measure Results

The rate of psychiatric discharges from a hospital is 200 per 1,000 active-component service members in the PTSD cohort during the year after diagnosis (Table 4.6). This rate was computed based on administrative data from SIDR and TED-I. Identifying and summarizing separate inpatient stays from these data proved to be challenging, and rules were created to improve accuracy of counting discharges.² Appendix C provides details of the assumptions used to process these data for analysis.

Comparative Results from Other Sources

We identified one previous study that calculated comparable rates for mental health hospitalizations among veterans with a diagnosis of PTSD (Sorbero et al., 2010). In this study, the rate of inpatient discharges with a mental health diagnosis in FY 2008 was 69.7 per 1,000 veterans with a diagnosis of PTSD (for both VHA and non-VHA care). This rate is much lower than the rate in our study (200 per 1,000 service members). The difficulties noted above in assessing the inpatient data to define discrete inpatient admissions warrants some caution in evaluating these results.

Overview of Measures for Service Members in PTSD Cohort

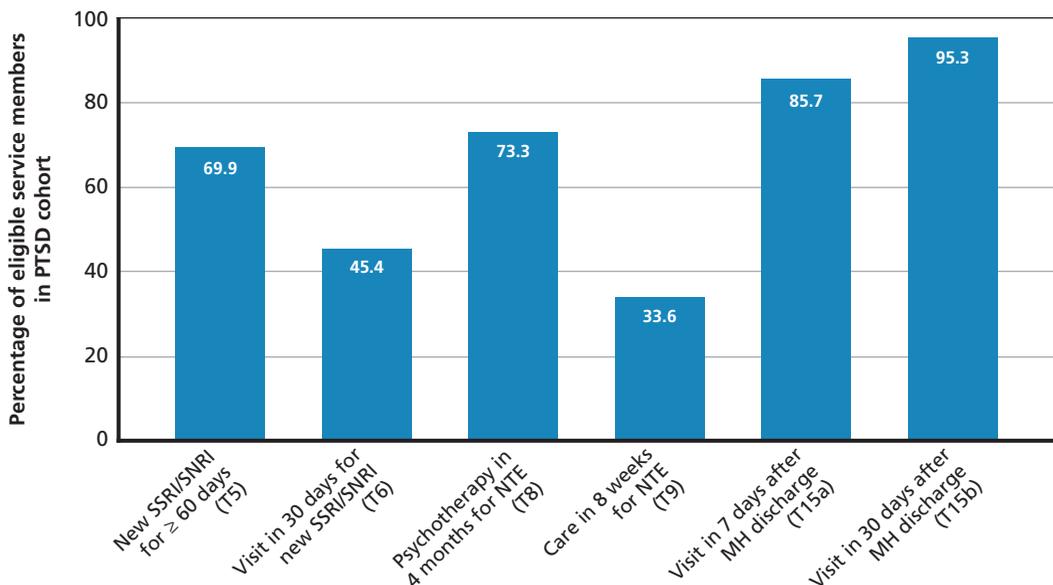
Active-component service members with a PTSD diagnosis received recommended care 33.6 percent to 95.3 percent of the time (Figure 4.1), based on an analysis of administrative data for direct and purchased care over a 12-month observation period

² For example, when an inpatient disposition status of “still a patient (interim billing)” was followed with a data line with a “new” (next-day) admission date, this was assumed to be a continuing stay, rather than a new admission based on the coded status. Alternatively, a stay with a status of “discharge” or “return to active duty” with a next-day admission was assumed to be a new inpatient stay.

for each service member in 2012–2013. In interpreting these measure results, it is important to keep in mind that each measure applies to a much smaller subgroup of active-component service members within the PTSD cohort as specified by the measure definitions in the technical specifications (Appendix A). A total of 14,576 active-component service members were identified as eligible for the PTSD cohort using diagnosis codes from inpatient and outpatient utilization. However, the denominators of the PTSD measure rates reported in this chapter range from 2,037 (for T15) to 2,977 (for T8), representing only 14.0 percent to 20.4 percent of the total cohort, respectively.

Of service members with a PTSD diagnosis who filled a new SSRI/SNRI prescription, about two-thirds (69.9 percent) filled one or more prescriptions covering at least 60 days (T5), which is considered an adequate trial. The performance rate for another prescription-related measure was substantially lower, with 45.4 percent of service members with a PTSD diagnosis having a visit within 30 days after an SSRI/SNRI was newly prescribed (T6). Approximately 73 percent of active-component service members with a new treatment episode for PTSD were found to have at least one visit for psychotherapy within four months of when the PTSD episode started (T8). About one-third (33.6 percent) of service members with a new treatment episode for PTSD were found to have at least one visit for care within 8 weeks of when the PTSD episode started (T9). Approximately 86 percent (85.7 percent) of service members with a new treatment episode for PTSD were found to have at least one visit within 7 days after a mental health discharge (T15a). Approximately 95 percent (95.3 percent) of service members with a new treatment episode for PTSD were found to have at least one visit within 30 days after a mental health discharge (T15b).

Figure 4.1
Measure Rates for Eligible Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: SSRI/SNRI = selective serotonin reuptake inhibitor/selective norepinephrine reuptake inhibitor; NTE = new treatment episode; MH = mental health. The start of an NTE was defined as a primary diagnosis of PTSD at an outpatient visit with no condition-related treatment or condition-related medication in the prior six months. (See Table A.3, Key Definitions.) The look-back period for the “clean period” prior to the start of the NTE could include data from 2011.

Although one psychotherapy visit is unlikely to achieve a response, this measure gives an indication of the proportion that started psychotherapy. Only 33.6 percent of service members with a PTSD diagnosis were found to have had four psychotherapy visits or two E&M visits within eight weeks of the start of a new treatment episode (T9). This level of care is based on the recommendations of the VA/DoD Clinical Practice Guidelines for MDD and PTSD (Department of Veteran Affairs and Department of Defense, 2009) and, while it may not necessarily fully capture the application of psychotherapy with documented fidelity to evidence-based standards, represents a reasonable threshold for further variation analyses of high and low performers. The high rates of follow-up after psychiatric hospitalization (i.e., T15a rates of 85.7 percent within seven days and T15b rates of 95.3 percent within 30 days) is a notable strength and may be related to a 2011 MHS mandate describing follow-up procedures for missed behavioral health appointments, including those after mental health hospital discharges (Department of the Army, 2011). The rates of performance, although high compared to the other PTSD measures, still indicate room for improvement given the potential risk of adverse events during the immediate post-psychiatric discharge period. A recent memo emphasized the need for follow-up within the first 72 hours after discharge, including avoidance of weekend and federal holiday discharges to support this effort (Department of the Army, 2014). The rate of psychiatric discharges was 200 per 1,000 service members in the PTSD cohort during the year after diagnosis (data not shown in Figure 4.1).

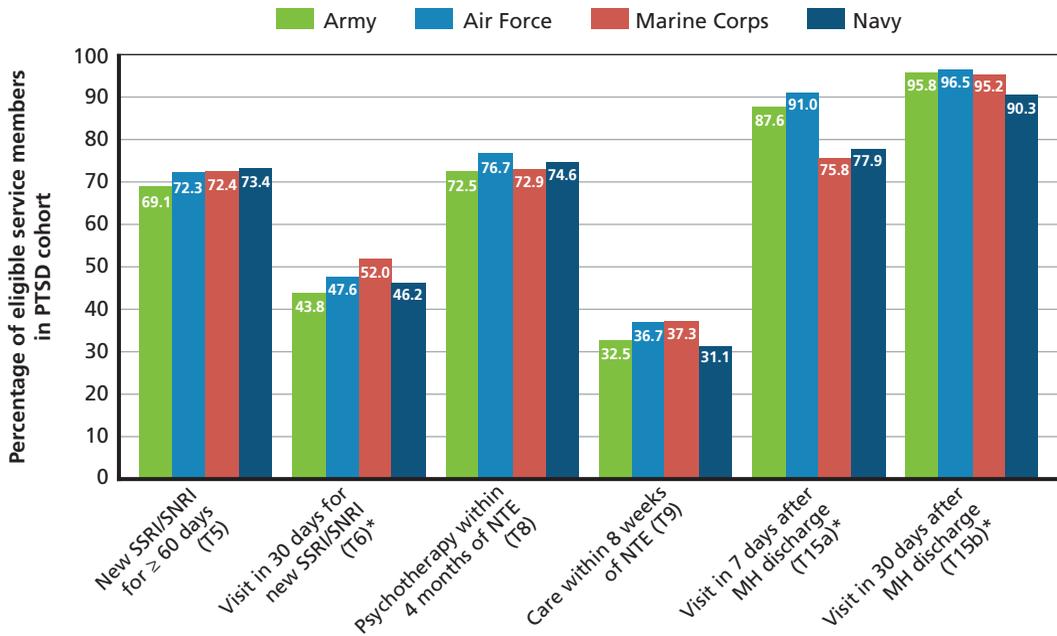
Performance of PTSD Measures by Branch of Service

Performance rates for three PTSD measures varied significantly by branch of service (Figure 4.2). Visit rates within 30 days of a new prescription for an SSRI/SNRI (T6) were significantly higher among service members in the Marine Corps (52.0 percent) than among those in the Army (43.8 percent) ($P < 0.05$). For the two measures of follow-up after a mental health discharge, Army and Air Force members showed much higher rates of follow-up at seven days than Marine Corps and Navy (T15a: 87.6 percent and 91.0 percent versus 75.8 percent and 77.9 percent, respectively, with all paired comparisons of Army and Air Force versus Marine Corps and Navy significant at $P < 0.05$), and significant differences for follow-up at 30 days with higher rates for Army than Navy (T15b: $P < 0.05$).

Performance of PTSD Measures by TRICARE Region

None of the four TRICARE regions emerged as having consistently better performance rates for the PTSD cohort, but significant differences were observed for four of the measures (Figure 4.3). The West region had a higher rate than the South region of having at least 60 days of SSRI/SNRI prescription (T5: 73.2 versus 65.1; $P < 0.01$). Follow-up within 30 days after a new prescription of SSRI/SNRI (T6) was significantly higher ($P < 0.05$ for all paired comparisons) for the North and Overseas regions (51.1

Figure 4.2
Measure Rates by Branch of Service for Eligible Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different across service branch.

RAND RR978-4.2

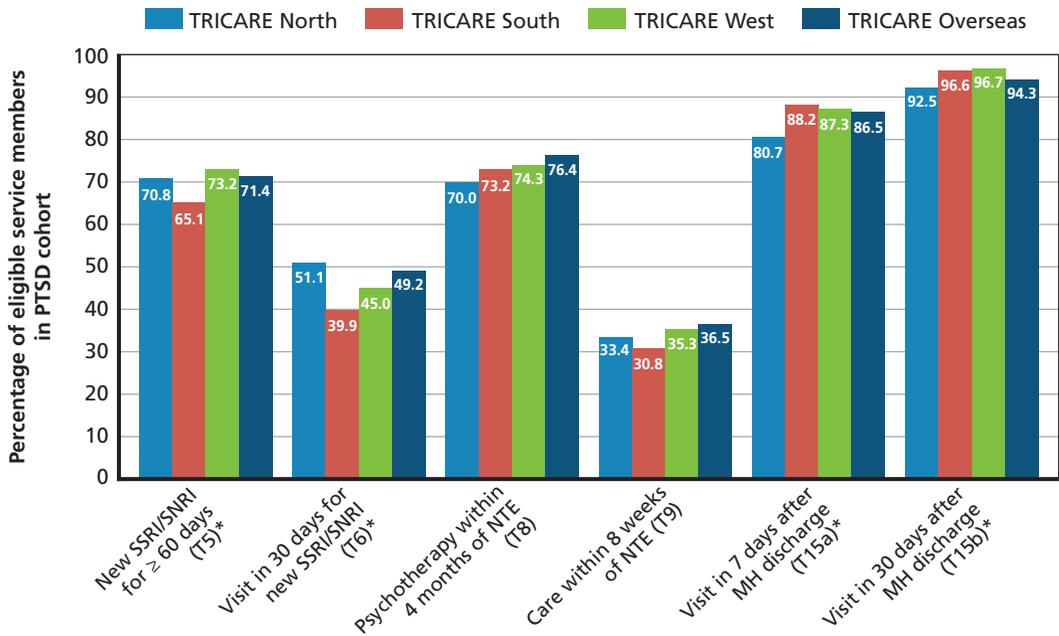
and 49.2 percent) than the South (39.9 percent). Significant differences among TRICARE regions in follow-up rates after mental health hospitalization were observed, with TRICARE North having lower rates than the West and South regions at seven days (T15a: 80.7 percent versus 87.3 percent [West] and 88.2 percent [South]; $P < 0.01$ for both paired comparisons) and 30 days (T15b: 92.5 percent versus 96.6 percent [South] and 96.7 percent [West]; $P < 0.05$ for both paired comparisons).

Quality Measure Results for Depression

Measure Overview

This measure assesses whether patients with a depression diagnosis and a new prescription for an antidepressant had filled prescription(s) for at least a 12-week or six-

Figure 4.3
Measure Rates by TRICARE Region for Eligible Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different across TRICARE region.

RAND RR978-4.3

month supply of an antidepressant. The measure is NQF-endorsed (NQF #0105—

Duration of New Antidepressant Treatment (Depression-T5a and Depression-T5b)	
Measure statement	Percentage of depression patients with a newly prescribed antidepressant medication for <ul style="list-style-type: none"> • 12 weeks (T5a) • Six months (T5b)
Numerator	(a) Effective Acute Phase Treatment: At least 84 days (12 weeks) of continuous treatment with antidepressant medication during the 114-day period following the initial prescription. (b) Effective Continuation Phase Treatment: At least 180 days (six months) of continuous treatment with antidepressant medication during the 231-day period following the initial prescription.
Denominator	Patients with depression with a new prescription for an antidepressant.

Antidepressant Medication Management) and is currently part of the HEDIS Quality Measurement set. The measure is supported by recommendations in the VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder (Department of Veterans Affairs and Department of Defense, 2009) and the American Psychiatric Association guidelines (Glenberg et al., 2010), both of which recommend antidepressant medications as a first-line treatment option for patients with MDD (Fournier et al., 2010; Moncrieff, Wessely, and Hardy, 2004). For patients who respond to antidepressants, guidelines recommend treatment be continued for four to nine months (Glenberg et al., 2010) and for six to 12 months (Department of Veterans Affairs and Department of Defense, 2009) to reduce the risk of relapse. These recommendations are based on a review of the empirical literature. For example, in a trial of fluoxetine, even among patients who showed no improvement at week six, 31 to 41 percent achieved full remission by 12 weeks (Quitkin et al., 2003). Additional empirical literature also supports these recommendations. Half of patients who begin antidepressant therapy discontinue the medication within one to six months after initiation (Melartin et al., 2005; Simon, 2002). These early discontinuations are associated with an increased risk for relapse and future depressive episodes (Melartin et al., 2005; Simon, 2002). (For more detail, see Appendix B.)

Measure Results

Among active-component service members in the depression cohort with a new prescription for an antidepressant medication, almost two-thirds (64.4 percent) filled prescriptions for at least a 12-week supply of antidepressant medication, based on administrative data (Table 4.7). Among the same eligible population, 44.0 percent filled prescriptions for at least a six-month supply of antidepressant medication. Of those who failed the 12-week measure, 47.7 percent had a 60-day supply or more of antidepressant but less than the minimum of 84 days. Of those who failed the six-month measure, only about 13 percent had a 90-day supply, and 8.8 percent had a 120-day supply. Another 29.3 percent had more than a 120-day supply, but less than the minimum of 180 days. The vast majority of the patients in the denominator (71.7 percent) received less than or equal to a 30-day supply of medication at the first prescription fill. Because these results were based solely on administrative data, it is not possible to know how many of the cases that failed the measure may have discontinued the medication early for justified reasons (e.g., adverse side effects). It is also possible that dispensed medication may have been supplemented with professional samples that would not have been counted in the total days' supply. This measure is limited to evaluating the days' supply dispensed and does not take into account medication that may have been discontinued after dispensing. The denominator eligibility for this measure followed NQF specifications and included diagnoses of major depressive disorder, depressive type psychosis, and depressive disorder, not elsewhere classified. (See Appendix B for details.)

Comparative Results from Other Sources

These rates of filled prescriptions for antidepressants for active-component service members with depression are comparable to rates for similar measures previously reported. Based on the MHS Review report (Department of Defense, 2014b), 2013 rates for all beneficiaries receiving care through the MHS (i.e., not limited to active-component service members) are 68.5 percent and 68.8 percent for the acute phase (12-week supply), and 46.1 percent and 49.6 percent for the continuation phase (six-month supply) for direct care and purchased care, respectively. Based on 2013 data for commercial health plans, the rate for the HEDIS acute phase (12-week supply) among members with a diagnosis of major depression was 64.4 percent/64.3 percent (HMO/PPO) (National Quality Forum, 2014), compared to 64.4 percent for the active-component service members in 2012–2013 in the current study. The rate for the HEDIS continuation phase (six-month supply) for commercial plan members was 47.4 percent/48.7 percent (HMO/PPO) in 2013, compared to 44.0 percent for active-component service members in 2012–2013. In a recent report of 499,000 veterans with MDD during 2009 to 2013 who were prescribed an antidepressant, rates for the acute and continuation treatment phases were 73 percent and 58 percent, respectively (U.S. Government Accountability Office, 2014). Therefore, the rates in the current study are slightly lower, but comparable with rates from previous studies of the MHS population and commercial health plans, and lower than available data for veterans with MDD.

Table 4.7
Percentage of Eligible Active-Component Service Members in the Depression Cohort Who Filled Prescriptions for a 12-Week Supply or a Six-Month Supply of Antidepressant Medication Among Those Who Filled a New Prescription, 2012–2013

Filled Prescription	Numerator	Denominator	Measure Rate
12-week supply	4,782	7,431	64.4%
Six-month supply	3,231	7,346	44.0%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

Follow-Up of New Prescription for Antidepressant (Depression-T6)	
Measure statement	Percentage of depression patients newly prescribed an antidepressant with follow-up visit within 30 days
Numerator	Depression patients who have a follow-up visit within 30 days of the new prescription for an antidepressant
Denominator	Patients with depression with a new prescription for an antidepressant

Measure Overview

This measure assesses whether a follow-up evaluation and management visit occurred within 30 days of a patient filling a new prescription for an antidepressant. This is a newly developed measure that will require further testing and validation against other sources of data (e.g., medical record data). The 30-day follow-up window is thought to represent an adequate time period of the antidepressant therapy, allowing the provider to make a determination of initial response and evaluate side effects experienced by the patient (Department of Veterans Affairs and Department of Defense, 2009). The follow-up visit provides an opportunity to titrate dosage, substitute a different antidepressant, or discontinue pharmacological treatment. We selected the 30-day time period based on clinical judgment because empirical evidence is not available to support a specific time period. Although there is clear evidence that antidepressant medications are associated with symptom reduction (Fournier et al., 2010), one-third of patients will discontinue treatment within a month of receiving the prescription (Simon, 2002). For this reason, it is important for providers to maintain contact with patients in order to assess side effects and barriers to medication adherence and treatment engagement. This measure has the limitation of counting selected psychotherapy visits with “medical evaluation and management services” in the numerator, but not counting other psychotherapy visits. (For more detail, see Appendix B.)

Measure Results

Approximately 42 percent of active-component service members in the depression cohort who had a new prescription for an antidepressant had an evaluation and management follow-up visit within the following 30 days, based on our analysis of administrative data (Table 4.8). The denominator for this measure is less than that for T5 due to denominator exclusions (see Appendix B for details). The mean time to the evaluation and management visit for cases that passed this measure was 16.4 days (range: 1–30). For those cases that failed this measure, 8.7 percent had a follow-up evaluation and management visit between 31 and 45 days and another 4.9 percent had a follow-up visit between 46 and 60 days. Of those patients who had a follow-up E&M visit within 30 days, 55 percent saw a mental health provider at that qualifying follow-up visit. One consideration when interpreting this measure is that phone, email, and care

manager visits (if not coded as an evaluation and management visit) did not qualify for the follow-up visit.

Comparative Results from Other Sources

A study (Chen et al., 2010) analyzed 2000–2002 data on patients 18 years or older who were diagnosed with MDD and initiated treatment with second-generation antidepressants. The authors found that 31 percent of these patients received at least three follow-up visits during the first 90 days after the index antidepressant prescription and at least one of the follow-up visits was with a provider with prescribing privileges.³ In another study of FY2007 administrative data, veterans with an MDD new treatment episode who had continuous treatment with a psychiatric medication were found to have 3.9 evaluation and management visits by a licensed provider in four months, and 10.7 visits in 12 months (Sorbero et al., 2010). Although the first study focused on a longer time period than our measure (90 days versus 30 days) and more visits (three versus one), and the second study defines the measure as mean number of visits, they provide similar estimates of the level of care received by patients with a new antidepressant prescription for MDD in our study (42.1 percent).

Table 4.8
Percentage of Eligible Active-Component Service Members in Depression Cohort with Follow-Up Visit Within 30 Days Among Those with a New Prescription, 2012–2013

Follow-up After New Prescription	Numerator	Denominator	Measure Rate
Visit within 30 days	3,105	7,369	42.1%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

Psychotherapy for New Treatment Episode (Depression-T8)	
Measure statement	Percentage of depression patients in a new treatment episode who received any psychotherapy within four months
Numerator	Patients in the denominator who receive any psychotherapy within four months following the start of a new treatment episode
Denominator	Patients in a new treatment episode of depression

³ The use of E&M codes is restricted to qualified health care providers. The additional requirement of a licensed prescribing provider did not have impact on the resulting number of E&M visits. Therefore, the current study does not include the licensed prescribing provider requirement. This study also included in the definition of an E&M visit the ICD-9 code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) due to the common use of prescribing clinical psychologists in MTFs.

Measure Overview

This measure assesses whether a patient with a diagnosis of depression in a new treatment episode had a visit for psychotherapy within four months. This measure was modified from a measure used in the VA Mental Health Program Evaluation (Farmer et al., 2010; Sorbero et al., 2010; Watkins et al., 2011). This measure is consistent with the recommendations of the VA/DoD Clinical Practice Guidelines for Management of Major Depressive Disorder (Department of Veterans Affairs and Department of Defense, 2009), which recommends three forms of psychotherapy as a first-line treatment option—cognitive behavioral therapy, interpersonal therapy, and problem solving therapy. Similarly, the American Psychiatric Association practice guidelines recommend that cognitive behavioral therapy be considered a first-line treatment option for MDD (Glenberg et al., 2010). There is an extensive evidence base supporting specific types of psychotherapy (i.e., cognitive behavioral therapy, interpersonal therapy, problem solving therapy) as effective for depression (DeRubeis et al., 2005; Dimidjian et al., 2006; McLean and Hakstian, 1979). However, this indicator does not capture the type of psychotherapy offered (i.e., evidence-based or not). Further, the threshold for success on the measure is met after a single psychotherapy session, which is unlikely to be adequate to achieve a response. This measure is intended to assess whether patients have the opportunity to receive evidence-based psychotherapy for depression, but, as noted above, there are limitations in that inference. Thus it is best used as a descriptive measure to assess variation in performance across sites and providers regarding the utilization of psychotherapy. Such a variation analysis would be followed up by more qualitative methods with high and low performers to better understand the reasons for the variation. (For more detail, see Appendix B.)

Measure Results

About half (52.0 percent) of active-component service members in the depression cohort received psychotherapy within four months of the start a new treatment episode, based on our analysis of administrative data (Table 4.9). Of the 3,753 patients who failed this measure, only 4.1 percent had psychotherapy in four to six months after the start of the new treatment episode, and another 9.9 percent first had psychotherapy more than six months later. Of the patients who failed this measure, 1,003 were given at least an 84-day supply of an antidepressant during the four-month measurement period, suggesting 64.8 percent of patients received either any psychotherapy or an appropriate course of antidepressant medication.

Comparative Results from Other Sources

The rate of having psychotherapy after a new treatment episode for depression among veterans varies in the literature depending on length of follow-up and other factors. Of veterans with a new treatment episode for MDD, 40.3 percent received some psychotherapy within the four months following the start of the NTE, based on

Table 4.9
Percentage of Eligible Active-Component Service Members in Depression Cohort with Any Psychotherapy Within Four Months Among Those in a New Treatment Episode, 2012–2013

Treatment After NTE	Numerator	Denominator	Measure Rate
Any psychotherapy within four months	4,058	7,811	52.0%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

FY 2007 administrative data (Sorbero et al., 2010). Of veterans newly diagnosed as having depression based on a broader definition, 18 percent received some form of psychotherapy within 90 days of diagnosis based on FY 2004 administrative data (Burnett-Zeigler et al., 2012). The rates of psychotherapy from these two studies are lower than the results from the current study (52.0 percent). Methodological differences between the studies may have contributed to this finding, including time periods, care systems, characteristics of the patients, and definition of a new treatment episode.

Receipt of Care in First Eight Weeks (Depression-T9)	
Measure statement	Percentage of depression patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks
Numerator	Patients in the denominator who received four psychotherapy visits or two evaluation and management visits within eight weeks of a new treatment episode
Denominator	Patients in a new treatment episode of depression

Measure Overview

This measure assesses whether four psychotherapy visits or two E&M visits occurred within the first eight weeks for a patient with a diagnosis of depression in a new treatment episode. This measure was developed for this project to assess receipt of a minimally appropriate level of care for depression patients entering a new treatment episode. The specification of multiple psychotherapy visits within eight weeks is consistent with the MDD guideline that states that “patients require frequent visits early in treatment to assess response to intervention, suicidal ideation, side effects, and psychosocial support systems” (Department of Veterans Affairs and Department of Defense, 2009) and with technical specifications used in the VA Mental Health Program Evaluation (Horvitz-Lennon et al., 2009). The alternate level of care of two evaluation and management visits for the purpose of medication management is recommended by the VA/

DoD practice guidelines (Department of Veterans Affairs and Department of Defense, 2009). (For more detail, see Appendix B.)

Measure Results

About one in four (23.8 percent) active-component service members with a diagnosis of depression received four psychotherapy visits or two evaluation and management visits within eight weeks of the start of a new treatment episode, based on our analysis of administrative data (Table 4.10). The denominator for this measure is less than that for T8 due to denominator exclusions (see Appendix B for details). Of those passing the measure, 30.5 percent passed based on the basis of four psychotherapy visits, 50 percent passed with two E&M visits, and 19.5 percent passed based on having both psychotherapy and E&M visits.

Comparative Results from Other Sources

There are no results from other studies that provide a fully valid comparison with our results; however, there are several studies that provide a useful context for understanding these results. Of veterans having a psychiatric inpatient stay within the VHA with a diagnosis of MDD, 12.9 percent received eight or more psychotherapy visits in the first 90 days after discharge in 2004–2008 (Pfeiffer et al., 2011). The measure in that study focused on those discharged from a psychiatric hospital and creates a higher threshold than our measure (i.e., at least eight psychotherapy visits in 90 days versus four psychotherapy visits or two evaluation and management visits in eight weeks, respectively). Also, the veteran population was limited to inpatient stays for MDD, while this study focused on cases newly diagnosed in the outpatient setting and included a broader definition of depression than only MDD. These differences may have resulted in a higher level of severity of illness in the veteran population and make comparison of the two rates difficult; however, the rate from the Pfeiffer study is lower than the rate in the current study (12.9 percent and 23.8 percent, respectively).

Table 4.10
Percentage of Eligible Active-Component Service Members in Depression Cohort with Four Psychotherapy Visits or Two Evaluation and Management Visits Within First Eight Weeks Among Those in a New Treatment Episode, 2012–2013

Treatment After NTE	Numerator	Denominator	Measure Rate
Four psychotherapy visits or two evaluation and management visits within first eight weeks	1,814	7,616	23.8%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

Follow-Up After Hospitalization for Mental Illness (Depression-T15a and Depression-T15b)	
Measure statement	Percentage of psychiatric inpatient hospital discharges of patients with depression with follow-up: Within seven days of discharge (T15a) Within 30 days of discharge (T15b)
Numerator	Inpatient discharges in the denominator where the inpatient discharge was followed with an outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner: Within seven days of discharge (T15a) Within 30 days of discharge (T15b)
Denominator	Patients with depression discharged from an acute inpatient setting with primary mental health diagnosis

Measure Overview

This measure assesses whether patients who have a depression diagnosis and a mental health hospitalization have follow-up within specified periods of time after discharge (i.e., seven and 30 days). This is an NQF-endorsed measure (NQF 0576) that is part of the HEDIS 2013 measure set (National Committee for Quality Assurance, 2013a) (but is not restricted to depression patients). The 2010 VA/DoD Clinical Practice Guideline for depression (Department of Veterans Affairs and Department of Defense, 2009) refers to the potential use of case management to coordinate and increase continuity of care. Studies in the literature have concluded that missed appointments and similar disengagement from mental health services may lead to exacerbation of psychiatric symptoms, repeated hospitalizations, first-episode or recurrent homelessness, violence against others, and suicide (Dixon et al., 2009; Fischer et al., 2008; Mitchell and Selmes, 2007; U.S. Government Accountability Office, 2014). (For more detail, see Appendix B.)

Measure Results

A high percentage of active-component service members with a diagnosis of depression who were hospitalized for a mental health diagnosis received some type of follow-up care shortly after discharge (86.2 percent and 95.1 percent within seven days and 30 days, respectively), based on our analysis of administrative data (Table 4.11). Of those cases that passed the measure at the seven-day level, 43.8 percent had the follow-up visit on the day of discharge, and 28 percent had the visit on the day after discharge. A total of 84.6 percent of patients with a follow-up visit within seven days had the follow-up visit within 72 hours of discharge. Of those passing at the 30-day level, 95.8 percent had a visit by the 14th day after discharge and 98.3 percent by the 21st day after discharge.

Comparative Results from Other Sources

Rates of follow-up after a mental health hospitalization are available for several populations, based on analyses of administrative data. Among veterans with an MDD diagnosis, follow-up after a mental health hospitalization was reported as 45.8 percent within seven days and 78.1 percent within 30 days in FY 2007 (Sorbero et al., 2010). Another study of veterans with an MDD diagnosis found follow-up after a mental health hospitalization was 39.4 percent within seven days and 75.8 percent within 30 days based on 2004–2008 data (Pfeiffer et al., 2011). Another two studies reported rates based on hospitalized patients with any mental health diagnosis, not restricted to those with a depression diagnosis. Rates of follow-up after discharge from mental health hospitalizations in 2013 were 58.5 percent within seven days and 74.8 percent within 30 days for MTFs, and 34.4 percent within seven days and 57.4 percent within 30 days for hospitals in the purchased care network (Department of Defense, 2014b). Based on 2013 data for an NQF-endorsed measure (Follow-up after hospitalization for mental illness [NQF 0675]) (National Quality Forum, 2013a), rates of follow-up within seven days after a mental health hospitalization were reported as 54.6 percent/49.8 percent, 42 percent, and 34.5 percent/33.5 percent, and within 30 days after a mental health hospitalization were 72.8 percent/69 percent, 60.9 percent, and 53.5 percent/56 percent for commercial plans (HMO/PPO), Medicaid, and Medicare patients (HMO/PPO), respectively (National Committee for Quality Assurance, 2014).⁴ The NQF-endorsed measure denominator definition includes discharges of patients age six years and older. All of these follow-up rates are substantially lower than the rates observed in our study (86.2 percent and 95.1 percent within seven days and 30 days, respectively). Higher rates in the current study may be explained by restriction of our study sample to active-component service members with depression, whereas the other studies were either only civilian patients with any mental health diagnosis (National Qual-

Table 4.11
Percentage of Eligible Active-Component Service Members in Depression Cohort with Follow-Up Within Seven Days and 30 Days of Discharge Among Those with Mental Health Hospitalization, 2012–2013

Follow-up After Hospitalization	Numerator	Denominator	Measure Rate
Within seven days	3,287	3,814	86.2%
Within 30 days	3,629	3,814	95.1%

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

⁴ The NCQA specifications for the numerator of this measure do not currently include code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]). However, this code was included in the current study's applied definition of the numerator given the common use of prescribing clinical psychologists in the MHS.

ity Forum, 2013a) or all patients hospitalized in MTFs or TRICARE network hospitals, meaning a mix of military members and civilian patients with any mental health diagnosis (Department of Defense, 2014b), or hospitalized veterans with a diagnosis of depression (Farmer et al., 2010). Further, all of these studies analyzed data from an earlier time period (2004–2013). In addition, the higher rates of follow-up after mental health hospitalization may be the result of a 2011 MHS mandate providing guidance for response to missed behavioral health appointments due to no-show, cancellation, or refusal to schedule. The guidance provided notification of commanding officers in circumstances of higher-risk noncompliance, including follow-up after discharge from inpatient mental health care (Department of the Army, 2011). There is continued interest in this measure by the MHS as an important target for improved performance as evidenced by a 2014 memo that directed follow-up for a mental health inpatient admission to occur within 72 hours of discharge (Department of the Army, 2014). The high rates of follow-up in the cohort may merit study of the mechanisms used by the MHS in achieving this level of success. Some strategies may be generalizable to the other systems of care. In addition, a study of whether these rates of follow-up improve outcomes would be informative, including the impact of a same-as-discharge-day follow-up versus a follow-up after the day of discharge.

Rate of Psychiatric Inpatient Discharges Among Patients with Depression (Depression-RU1)	
Measure statement	Number of psychiatric discharges per 1,000 patients with depression
Numerator	Number of psychiatric discharges during the measurement period for patients in the denominator
Denominator	Number of patients with depression divided by 1,000

Measure Overview

This measure of utilization (or resource use) is the rate of hospital discharges with a psychiatric diagnosis among patients with depression. It was developed in response to recommendations of an expert panel for monitoring postdeployment health (Department of Defense, Deployment Health Clinical Center and Post-Deployment Health Guidance Panel, 2001). A similar utilization measure was used in the VA Mental Health Program Evaluation (Sorbero et al., 2010). This measure is based on recommendations in the 2010 VA/DoD Clinical Practice Guideline about when inpatient psychiatric care is appropriate (Department of Veterans Affairs and Department of Defense, 2009). These guidelines recommend inpatient care when the symptoms of a PH condition are severe, or when the patient poses a threat to himself, herself, or others. Research evidence does not exist to support use of this measure to monitor

Table 4.12
Annual Rate of Psychiatric Discharges (per 1,000) Among Eligible Active-Component Service Members in Depression Cohort, 2012–2013

	Numerator	Denominator	Rate per 1,000
Rate of psychiatric discharges	5,342	30,541	175

NOTE: Each eligible service member was observed over a 12-month measurement period starting with a depression diagnosis between January and June 2012.

the rate of psychiatric hospitalizations over time, and there is not a benchmark for the appropriate rate of psychiatric discharges in patients with depression. Thus, it is best used as a descriptive measure to assess variation in performance across sites and providers regarding the rate of inpatient admissions for mental health diagnoses in patients with a depression diagnosis. Such a variation analysis would be followed up by more qualitative methods to better understand the reasons for the variation.

Measure Results

The rate of psychiatric discharges from a hospital is 175 per 1,000 active-component service members with a depression diagnosis during the year after diagnosis (Table 4.12). This rate was computed based on administrative data from SIDR and TED-I. As noted earlier, identifying and summarizing separate inpatient stays from these data proved to be challenging, and rules were created to improve accuracy of counting discharges. See Appendix C for details of the assumptions used to process these data for analysis.

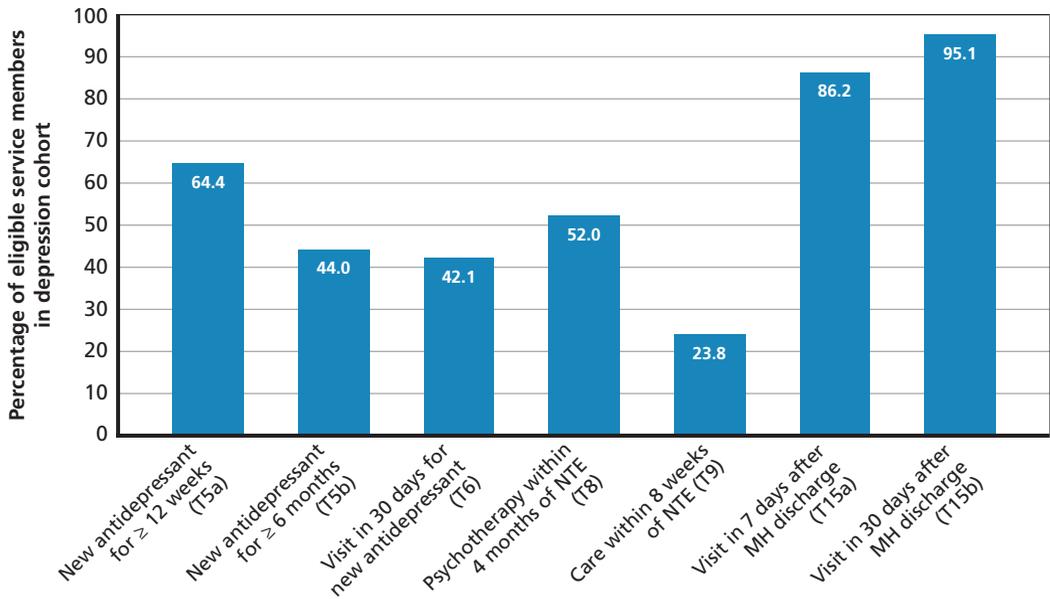
Comparative Results from Other Sources

We identified one previous study that calculated comparable rates for mental health hospitalizations among veterans receiving care from the VA with a diagnosis of depression (Sorbero et al., 2010). In this study, the rate of inpatient discharges with a mental health diagnosis in FY 2008 was 127.1 per 1,000 veterans with a diagnosis of depression (both VHA and non-VHA care). This rate is considerably lower than the rate in our study (175 per 1,000 service members). The difficulties noted above in assessing the inpatient data and distinguishing discrete inpatient stays warrants some caution in interpreting these results.

Summary of Measures for Service Members in the Depression Cohort

Active-component service members with a depression diagnosis received recommended care from 23.8 to 95.1 percent of the time (Figure 4.4), based on an analysis of administrative data for direct and purchased care over a 12-month observation period for each service member in 2012–2013. In interpreting these measure results, it is important to keep in mind that each measure applies to a much smaller subgroup of

Figure 4.4
Measure Rates for Eligible Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: The start of an NTE was defined as a primary diagnosis of depression at an outpatient visit with no condition-related treatment or condition-related medication in the prior six months. (See Table B.3, Key Definitions.) The look-back period for the “clean period” prior to the start of the NTE could include data from 2011.

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active-component service members within the depression cohort as specified by the measure definitions in the technical specifications (Appendix A). A total of 30,541 active-component service members were identified as eligible for the depression cohort using diagnosis codes from inpatient and outpatient utilization. However, the denominators of the depression measure rates reported in this chapter range from 3,814 (for T15) to 7,811 (for T8), representing only 12.5 percent to 25.6 percent of the total depression cohort, respectively.

The high rates of follow-up after psychiatric hospitalization (i.e., 86.2 percent within seven days for T15a and 95.1 percent within 30 days for T15b) are clear strengths for the MHS. These results should be studied to learn how they were achieved. An MHS mandate was issued in 2011 describing follow-up procedures for missed behavioral health appointments, including those after mental health hospital discharges (Department of the Army, 2011). The details of how this mandate was implemented at the MTF level and its impact on procedures at the patient level may be important in understanding the high rates of follow-up. The rates, although high compared to other measures, still indicate room for improvement to reduce the risk of adverse out-

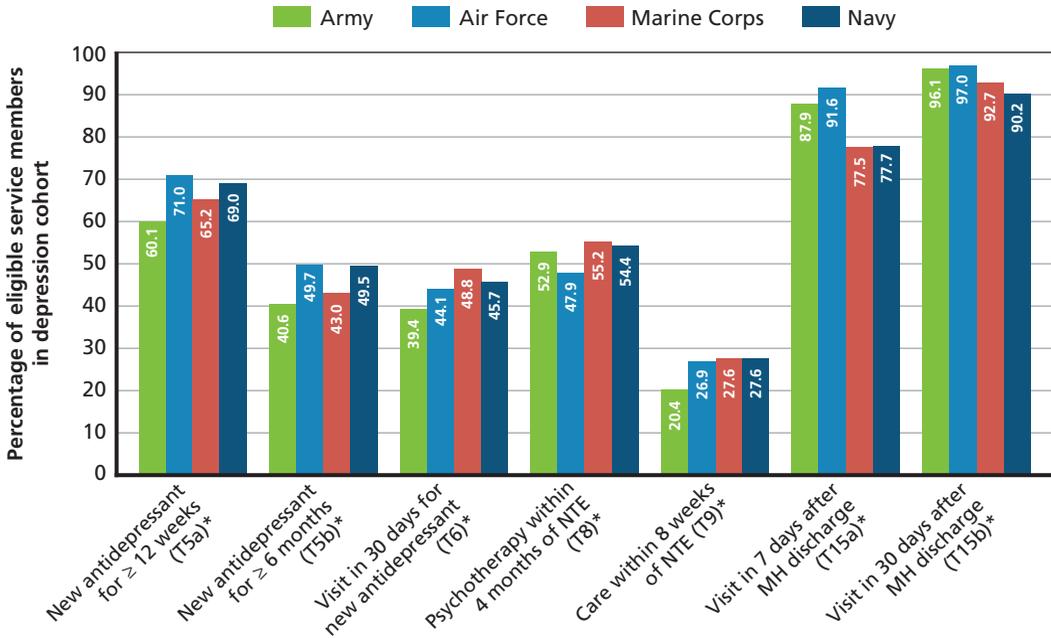
comes during the high-risk post-discharge period and to respond to recent emphasis on follow-up occurring within the first 72 hours after discharge (Department of the Army, 2014).

The rates of filled prescriptions for newly prescribed antidepressants for the recommended time periods (i.e., 12 weeks for acute phase for T5a, and six months for continuation phase for T5b) among active-component service members with depression are similar to care provided in civilian commercial plans (as discussed earlier). However, these rates, 64.4 percent for 12 weeks and 44.0 percent for six months, offer substantial opportunity for improving the rate of prescribed antidepressants for both the acute and continuation phases of treatment. About half or less of service members received the care specified in the other three measures: 52.0 percent received psychotherapy within four months of a new treatment episode (T8), 42.1 percent had a visit within 30 days after an antidepressant was newly prescribed (T6), and only 23.8 percent had four psychotherapy visits or two evaluation and management visits within eight weeks of the start of a new treatment episode for depression (T9). Among service members in the depression cohort, the rate of psychiatric discharges during the year following diagnosis (RU1) was 175 per 1,000 (data not shown in Figure 4.4).

Performance of Depression Measures by Branch of Service

All measure rates for the eligible active-component service members in the depression cohort differed significantly among the four branches of service (Figure 4.5). For the two measures related to duration of antidepressant treatment (T5a and T5b), significantly higher percentages of those with a new prescription in the Air Force and Navy filled prescriptions for antidepressants for at least 12 weeks (T5a) than those in the Army (71.0 percent, and 69.0 percent versus 60.1 percent; pairwise comparisons significant at $P < 0.0001$). In addition, those in the Air Force had higher rates than the Marine Corps, and those in the Marine Corps had higher rates than the Army (both $P < 0.05$). Similar patterns were observed for antidepressants for six months, 49.7 percent and 49.5 percent for Air Force and Navy, respectively, compared to 40.6 percent for Army (pairwise comparisons significant at $P < 0.0001$). Those in the Air Force and Navy also had higher rates than those in the Marine Corps ($P < 0.05$). Members of the Marine Corps, Navy, and Air Force had significantly higher rates of a follow-up visit within 30 days after a new antidepressant prescription (T6) than those in the Army (48.8, 45.7, and 44.1 percent, respectively, versus 39.4 percent; $P < 0.01$). Those in the Air Force had a significantly lower rate (47.9 percent) of any psychotherapy for a new treatment episode of depression (T8) than the other three services (52.9–55.2 percent; $P < 0.01$ for all comparisons). Service members in the Army had a significantly lower rate of four psychotherapy visits or two medication management visits within eight weeks for a new treatment episode (T9) than the other three services (20.4 percent versus 26.9–27.6 percent; all comparisons significant at $P < 0.001$). For the two measures related to follow-up after a psychiatric hospitalization (T15a and T15b), Army and

Figure 4.5
Measure Rates by Branch of Service for Eligible Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different across service branches.

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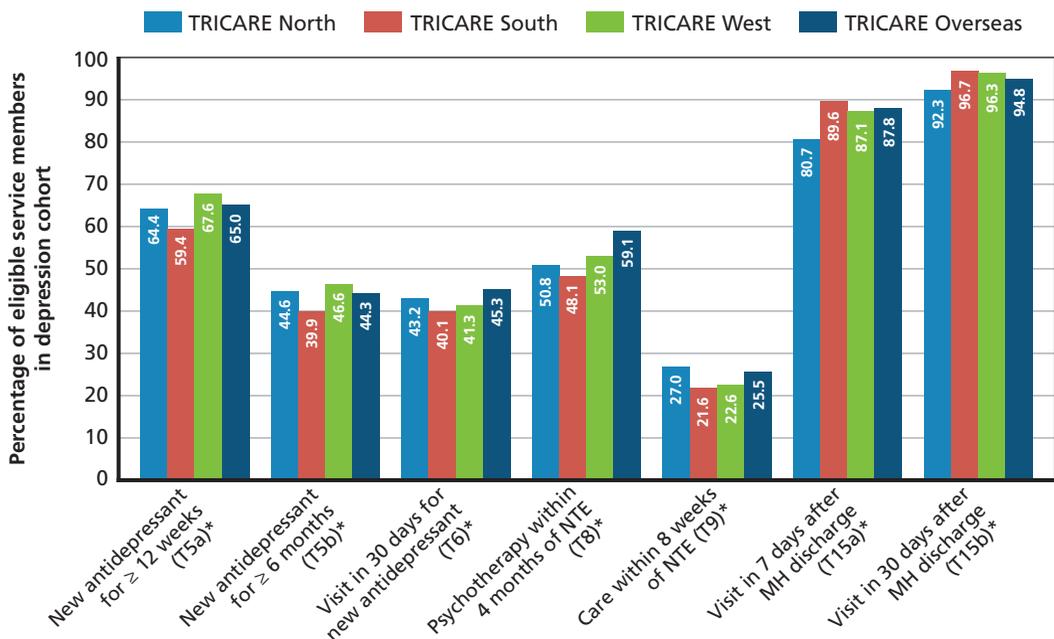
Air Force members showed much higher rates of follow-up at seven days than Marine Corps and Navy (87.9 percent and 91.6 percent versus 77.5 percent and 77.7 percent, respectively; all comparisons significant at $P < 0.0001$), with similar, but smaller, differences apparent at 30 days (96.1 percent and 97.0 percent versus 92.7 percent and 90.2 percent, respectively; all significant at $P < 0.05$). The Air Force also had significantly higher rates of follow-up at seven days than the Army ($P < 0.05$).

Performance of Depression Measures by TRICARE Region

Performance rates for all of the depression quality measures varied significantly by TRICARE region (Figure 4.6). A significantly higher percentage of active-component service members with a depression diagnosis in the TRICARE West region filled prescriptions for a newly prescribed antidepressant medication for at least 12 weeks (T5a) than those in the South region (67.6 percent versus 59.4 percent; $P < 0.0001$); the Overseas and North regions also had higher rates than the South (65.0 and 64.4 percent versus 59.4 percent; $P < 0.05$). For at least six months of filled prescriptions for a newly prescribed antidepressant medication (T5b), active-component service members with a depression diagnosis in the TRICARE West and North regions had significantly

higher rates than those in the South region (46.6 and 44.6 percent versus 39.9 percent, respectively; $P < 0.05$). Service members in the Overseas region had higher rates than the South for a visit within 30 days after a new antidepressant prescription (T6: 45.3 versus 40.1 percent; $P < 0.05$). The Overseas region also had the highest rates for psychotherapy for a new treatment episode (T8: 59.1 percent versus 48.1 percent [South], 50.8 percent [North], and 53.0 percent [West]; all $P < 0.01$), and the rate for the West was higher than the South (53.0 percent versus 48.1 percent; $P < 0.01$). Rates of appropriate care within the first eight weeks (i.e., four psychotherapy visits or two medication management visits) (T9) were low in all regions, but significantly higher in the North than in the South and West regions (27.0 percent versus 21.6 percent [South] and 22.6 percent [West]; $P < 0.01$). All four regions had high rates of a follow-up visit after a psychiatric hospitalization, with members in the North region having lower rates of follow-up at seven days (T15a) than the other three regions (80.7 percent versus 89.6 percent [South], 87.1 percent [West], and 87.8 percent [Overseas], $P < 0.05$). A similar pattern was observed for follow-up at 30 days (T15b) with the North region having a lower rate than the South and West ($P < 0.001$).

Figure 4.6
Measure Rates by TRICARE Region for Eligible Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different across TRICARE region.

Variations in Care for PTSD and Depression Based on Patient Characteristics

In this chapter, we present variations in evidence-based care received by active-component service members in the PTSD and depression cohorts by service member characteristics. The presentation of quality measure performance has been organized by characteristic, with the results for age described first, followed by those for race/ethnicity, gender, pay grade, and deployment history. Each figure presents the performance of measures for PTSD or for depression for one of the service member characteristics (e.g., age).

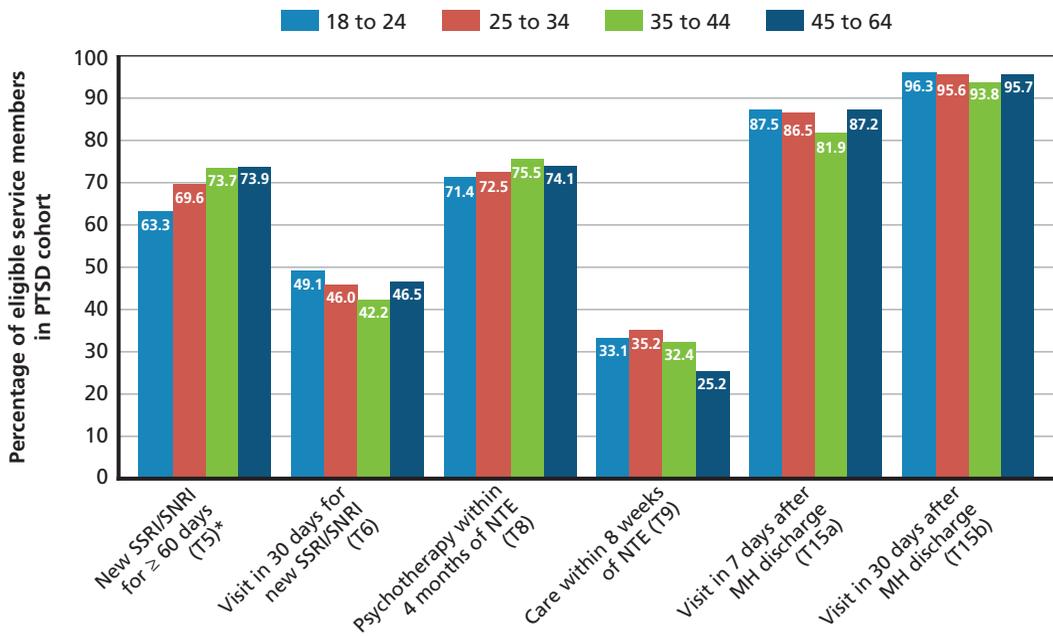
Performance of PTSD Measures by Age of Service Member

When evaluating variations in care by age groups for the PTSD cohort, we found a statistically significant difference for only one measure. The rate of filled prescriptions of SSRI/SNRI for at least 60 days following a new prescription varied significantly by age subgroups (T5 in Figure 5.1). Service members aged 18–24 years had a statistically significantly lower rate of filled prescriptions compared to those aged 35–44 years (63.3 percent versus 73.7 percent [$P < 0.01$]).

Performance of PTSD Measures by Race/Ethnicity of Service Member

Among service members in the PTSD cohort, we observed significant variation in performance rates among racial/ethnic subgroups for two of the measures. The rate of filled prescriptions of SSRI/SNRI for at least 60 days following a new prescription (T5 in Figure 5.2) differed significantly by racial/ethnic subgroups. Black, non-Hispanic service members had a statistically significantly lower rate of filled prescriptions for 60 days or more than white, non-Hispanic (63.8 percent versus 73.1 percent [$P < 0.01$]). Similarly, a significantly lower percentage of black, non-Hispanic service members than white, non-Hispanic service members (T9 in Figure 5.2) received four psychotherapy visits or two E&M visits within the first eight weeks of a new PTSD treatment episode

Figure 5.1
Measure Rates by Age for Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by age.

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(29.1 percent versus 35.4 percent [$P < 0.05$]). Overall, however, there did not appear to be a consistent pattern in measure performance by race/ethnicity in the PTSD cohort.

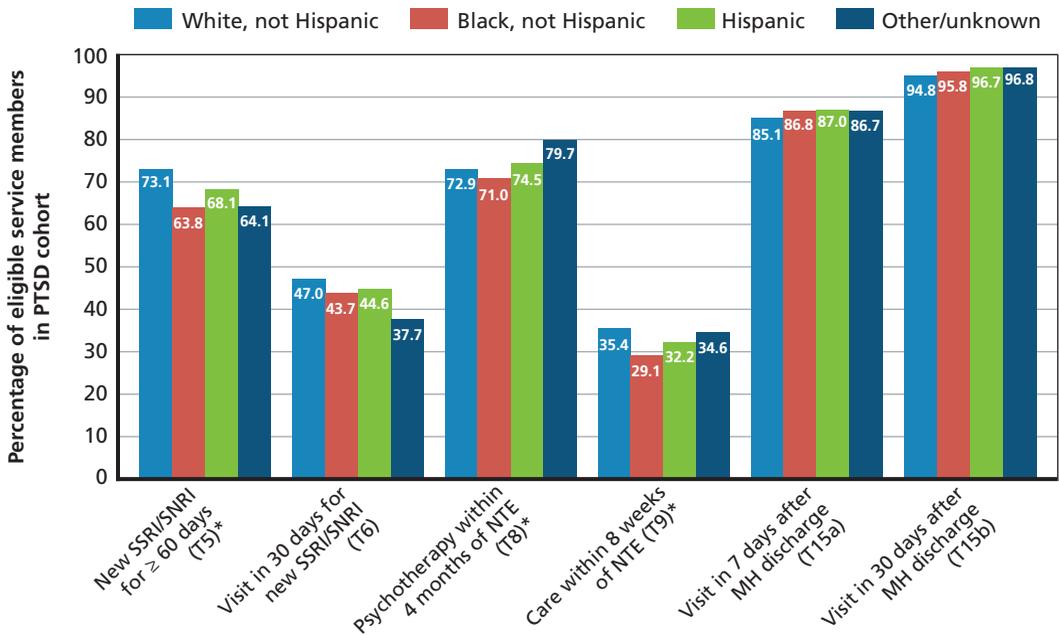
Performance of PTSD Measures by Gender of Service Member

Among service members in the PTSD cohort, the six measure rates did not differ significantly between female and male service members (Figure 5.3). The absolute differences in performance rates between the genders ranged from 0.0 to 6.1 percent, with women having higher rates for four measures and men having a higher rate for one measure, and one rate being equal.

Performance of PTSD Measures by Pay Grade of Service Member

Among service members in the PTSD cohort, a statistically significant difference in performance rates was observed by pay grade for one measure (Figure 5.4). The percentage of filled prescriptions of SSRI/SNRI for at least 60 days following a new pre-

Figure 5.2
Measure Rates by Race/Ethnicity for Active-Component Service Members in PTSD Cohort, 2012–2013

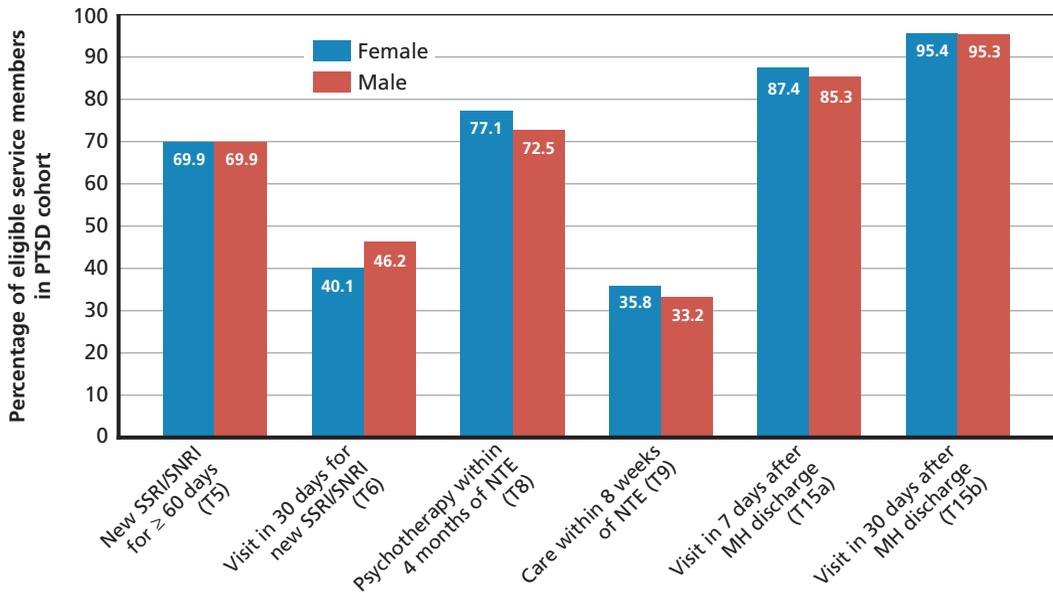


NOTE: * indicates measure rates were significantly different by race/ethnicity.

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scription (T5 in Figure 5.4) was significantly lower among service members in the lowest pay grade category (E1–E4) than among those in pay grade O1–O3 (65.9 percent versus 82.4 percent; $P < 0.05$) and significantly lower than those in pay grade O4–O6 (65.9 percent versus 81.8 percent; $P < 0.05$). Other differences between the enlisted service members and the officer categories were large, but not statistically significant. It may be important to explore further to understand what might contribute to these differences. The percentage with a psychotherapy visit within four months of a new treatment episode (T8 in Figure 5.4) was lower among those in the highest pay grade category (O4–O6) than the other three categories (64.5 percent versus 73.2–75.9 percent). A similar pattern was seen for having care (i.e., four psychotherapy visits or two E&M visits) within the first eight weeks of a new treatment episode, with a lower rate among those in the highest pay grade category (O4–O6) than the other three categories (27.5 percent versus 33.6–35.5 percent) (T9 in Figure 5.4). Therefore, there is a consistent, although not statistically significant, pattern of differences between the lowest and highest pay grades in PTSD-related care.

Figure 5.3
Measure Rates by Gender for Active-Component Service Members in PTSD Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by gender.

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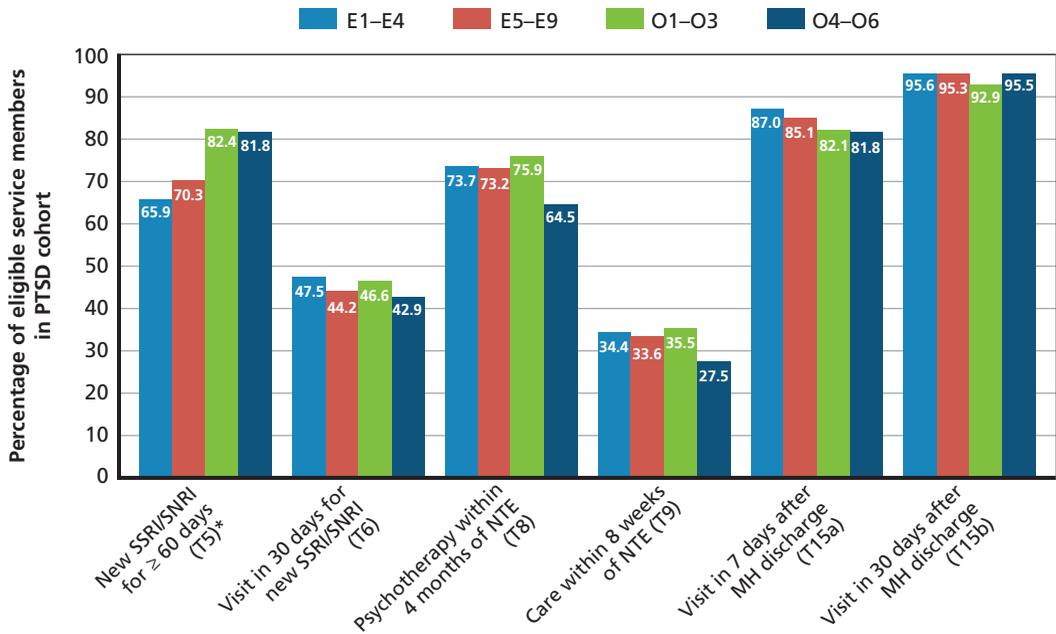
Performance of PTSD Measures by Deployment History of Service Member

Among service members in the PTSD cohort, no statistically significant differences in performance rates were observed for service members by deployment history (Figure 5.5). Absolute differences in performance rates between service members with and without a deployment ranged from 0.5 to 5.0 percent. These differences were also inconsistent in direction across the measures: Those with at least one deployment have higher rates for two measures and lower rates for four measures.

Performance of Depression Measures by Age of Service Member

Age was significantly related to performance of four measures tested for the depression cohort (Figure 5.6). The percentage of service members with at least 12 weeks of newly prescribed antidepressant medication for acute phase treatment (T5a) increased significantly with age, ranging from 55.0 percent for those 18–44 years of age to 74.8 percent for those 45–64 years (all pairwise comparisons significant at $P < 0.01$, except

Figure 5.4
Measure Rates by Pay Grade for Active-Component Service Members in PTSD Cohort, 2012–2013

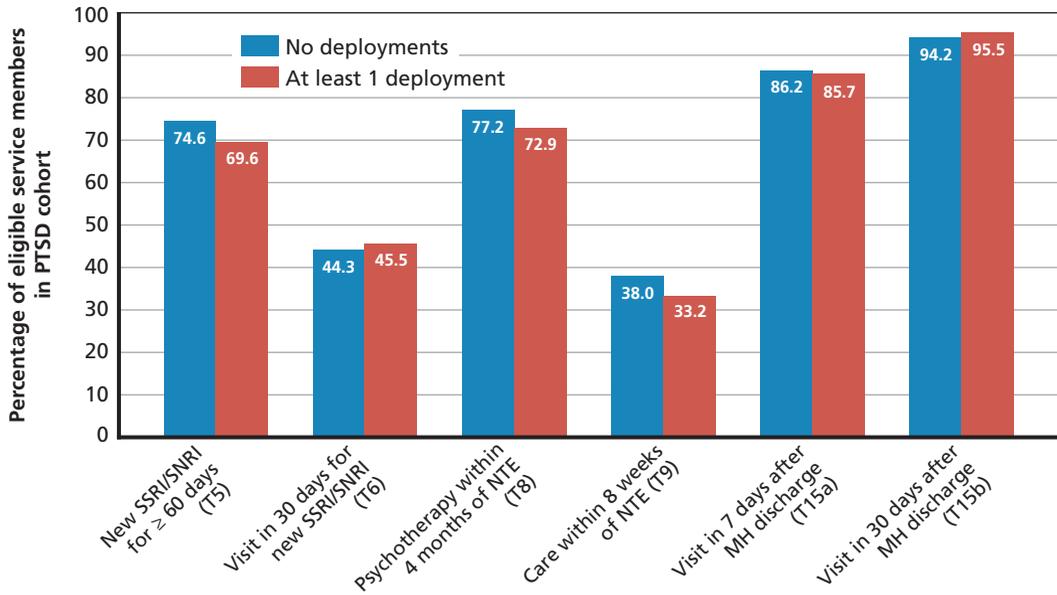


NOTE: * indicates measure rates were significantly different by pay grade.

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age 35–44 versus 45–64). Similarly, the percentage of service members with at least six months of newly prescribed antidepressant prescriptions for continuation phase treatment (T5b) increased significantly with age, ranging from 32.3 percent for those 18–44 years of age to 57.9 percent for those 45–64 years (all pairwise comparisons significant at $P < 0.0001$, except age 35–44 versus 45–64). The rate of a visit within 30 days of a new antidepressant prescription (T6) was significantly higher for those 18–24 years than those 35–44 years (44.3 percent versus 40.1 percent, $P < 0.05$), while the rate of having four psychotherapy visits or two E&M visits within the first eight weeks of a new treatment episode (T9) was significantly lower for those 18–24 than those 35–44 years (22.0 percent versus 27.0 percent; $P < 0.01$).

Figure 5.5
Measure Rates by Deployment History for Active-Component Service Members in PTSD Cohort, 2012–2013



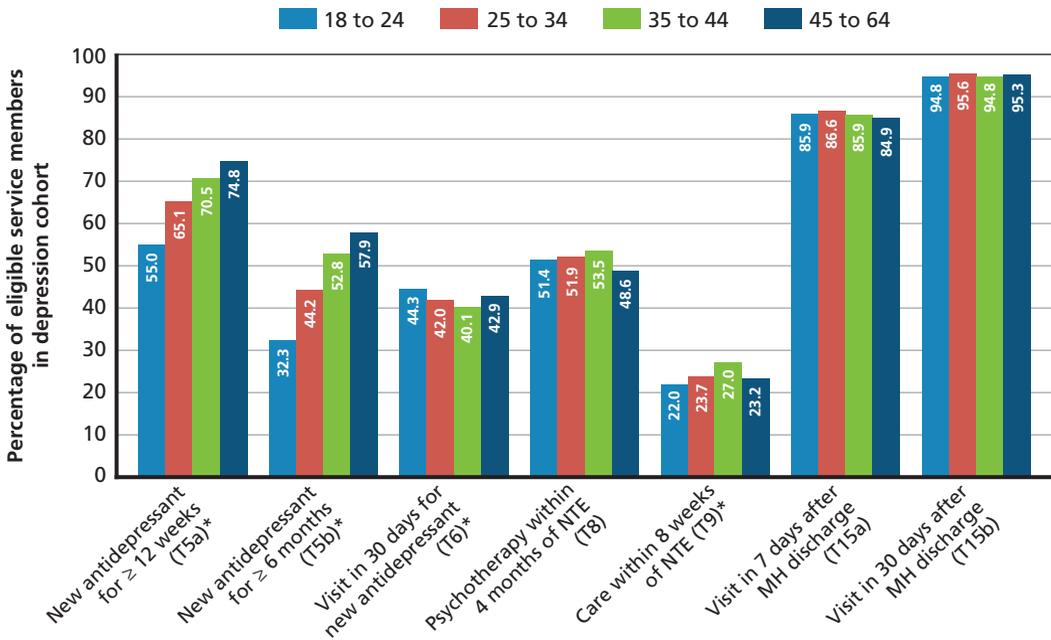
NOTE: * indicates measure rates were significantly different by deployment history.

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Performance of Depression Measures by Race/Ethnicity of Service Member

The performance rates of two measures tested for service members in the depression cohort were significantly related to race/ethnicity (Figure 5.7). The percentage of service members with at least 12 weeks of newly prescribed antidepressant medication for acute phase treatment (T5a) among those with a new prescription was highest among white, non-Hispanic service members, followed by Hispanic and black, non-Hispanic service members (68.0, 60.1, and 53.2 percent, respectively; all pairwise comparisons, $P < 0.01$). Similarly, the percentage of service members with at least six months of newly prescribed antidepressant medication for continuation phase treatment (T5b) among those with a new prescription was also highest among white, non-Hispanic service members, followed by Hispanic and black, non-Hispanic service members (47.2, 41.2, and 32.8 percent, respectively; all pairwise comparisons $P < 0.01$).

Figure 5.6
Measure Rates by Age for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by age.

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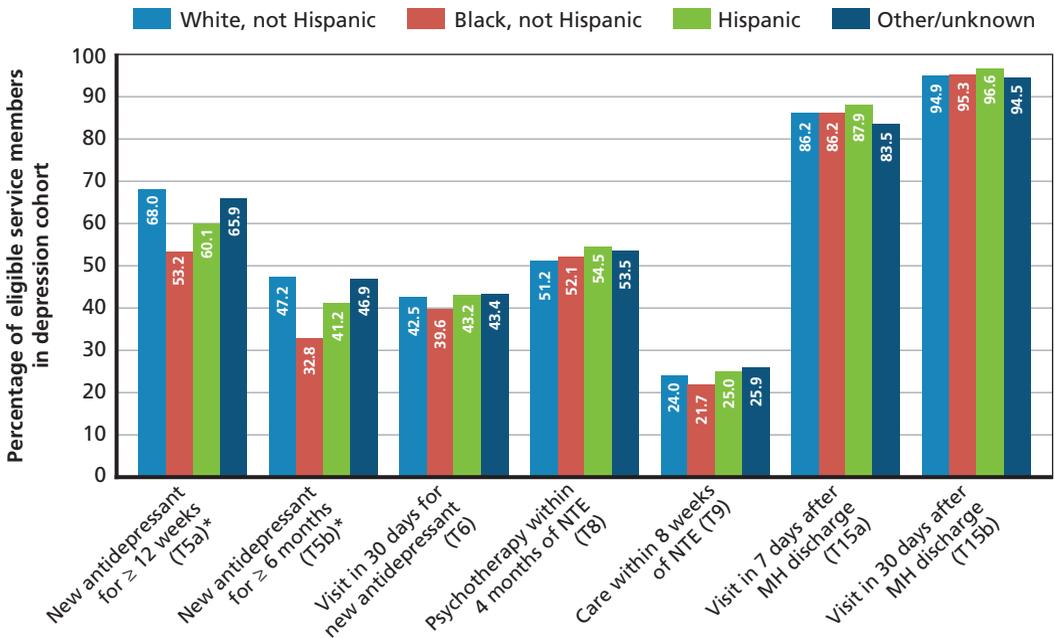
Performance of Depression Measures by Gender of Service Member

Performance rates did not differ significantly between male and female service members for any of measures tested for depression care (Figure 5.8). Absolute differences between performance rates for male and female service members ranged from 0.4 to 2.4 percent and were not statistically significant.

Performance of Depression Measures by Pay Grade of Service Member

Pay grade was significantly related to performance of three depression measures tested (Figure 5.9). The percentage of service members with at least 12 weeks of newly prescribed antidepressant medication for acute phase treatment (T5a) increased significantly with higher pay grade, ranging from 56.7 percent for E1–E4 to 78.9 percent for O4–O6 (all pairwise comparisons significant at $P < 0.05$, except O1–O3 versus O4–O6). Similarly, the percentage of service members with at least six months of newly prescribed antidepressant medication for continuation phase treatment (T5b) increased significantly with pay grade, ranging from 34.9 percent for E1–E4 to 64.3

Figure 5.7
Measure Rates by Race/Ethnicity for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by race/ethnicity.

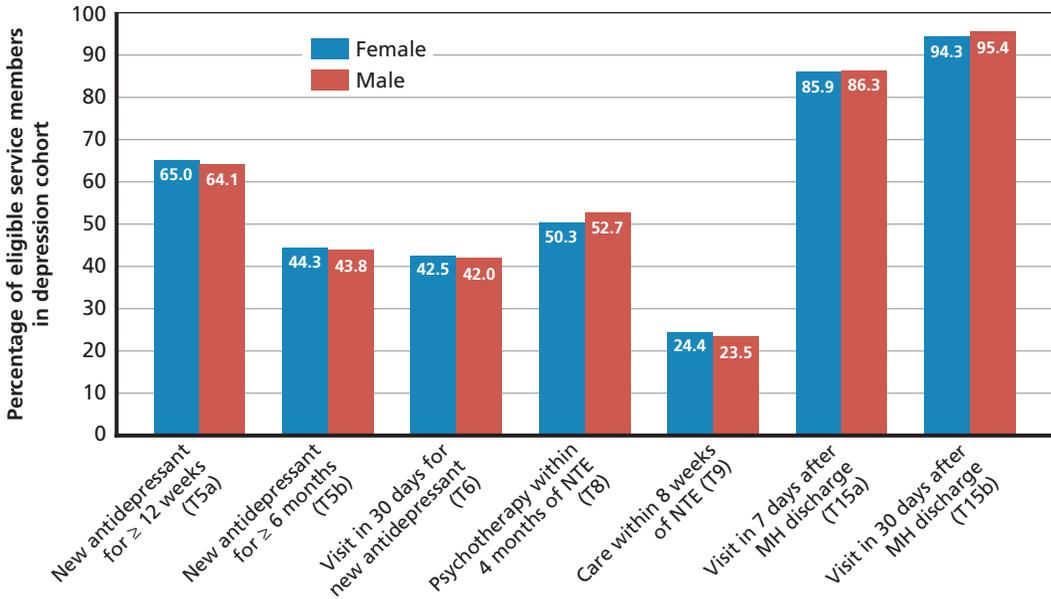
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percent for O4–O6 (all pairwise comparisons significant at $P < 0.05$, except O1–O3 versus O4–O6). The rate of receiving care (i.e., four psychotherapy visits or two E&M visits) within the first eight weeks of a new treatment episode (T9 in Figure 5.9) was significantly higher among those in the highest pay grade category (O4–O6) than in the lowest pay grade category (E1–E4) (30.8 percent versus 22.3 percent; $P < 0.05$). The rates for the other four measures did not differ significantly by pay grade, and there did not appear to be a consistent pattern in the results. These results are similar to those observed for age, given that age and pay grade are correlated.

Performance of Depression Measures by Deployment History of Service Member

In a comparison of performance among service members by deployment history, we identified four measures (T5b, T6, T9, and T15b) with statistically significant differences (Figure 5.10). The percentage of service members with at least six months of newly prescribed antidepressant medication for continuation phase treatment (T5b) was significantly lower among those without a history of deployment at the time of cohort

Figure 5.8
Measure Rates by Gender for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by gender.

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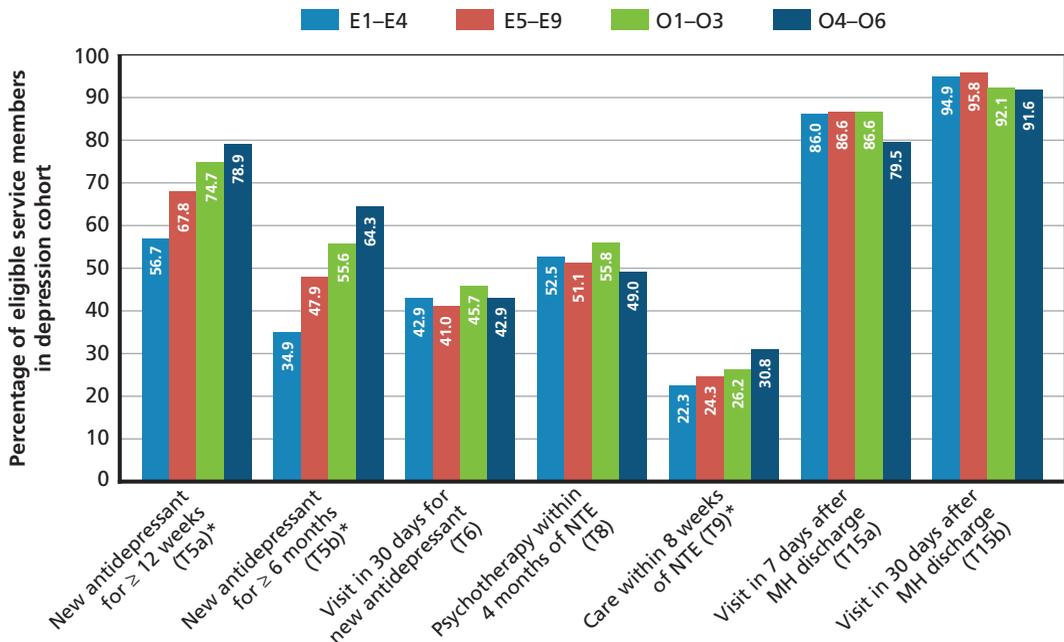
entry than among those with a deployment (41.5 percent versus 45.2 percent; $P < 0.05$). The rate of those with a visit within 30 days of a new prescription was significantly higher among those without a deployment history at the time of cohort entry than among those with a deployment (T6: 45.2 percent versus 40.7 percent; $P < 0.01$). The rate of having four psychotherapy visits or two E&M visits within the first eight weeks of a new treatment episode (T9) was also significantly higher among those without a deployment history at the time of cohort entry than among those with a deployment (25.5 percent versus 22.9 percent; $P < 0.05$). The percentage of service members with follow-up within 30 days after discharge from a mental health hospitalization (T15b) was significantly lower among those without a deployment history at the time of cohort entry than among those with a deployment (93.4 percent versus 95.9 percent; $P < 0.01$).

Summary of Variations by Service Member Characteristics

Performance of PTSD and Depression Measures by Age of Service Member

When evaluating variations in care for the PTSD and depression cohorts, we found statistically significant differences by age group for the measures related to filling pre-

Figure 5.9
Measure Rates by Pay Grade for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by pay/grade.

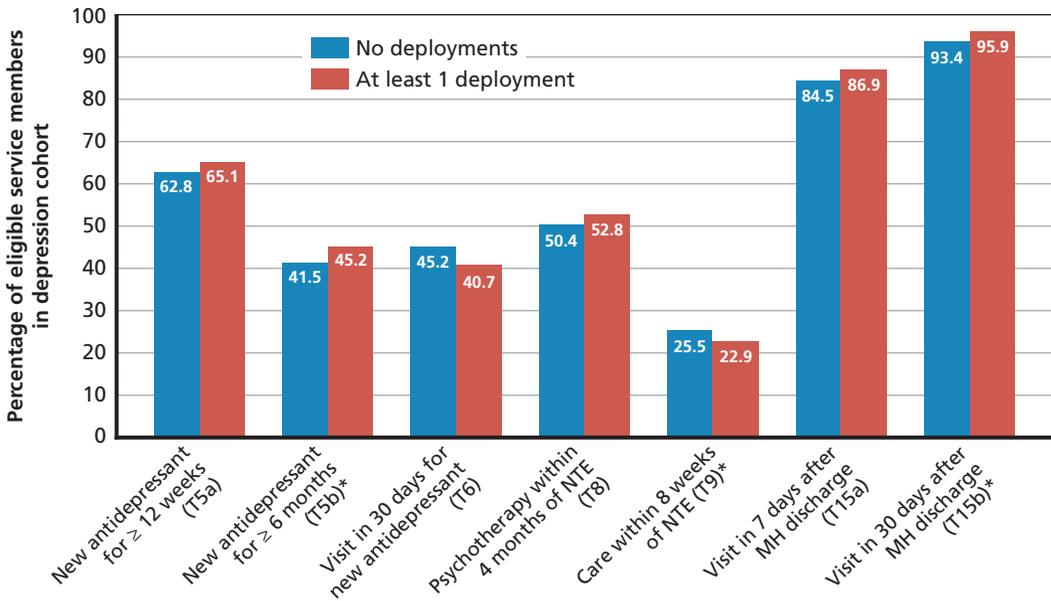
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scriptions for antidepressants after receiving a new prescription. The percentage of service members with filled prescriptions for the specified period of time (i.e., 60 days for SSRI/SNRI for PTSD, and 12 weeks and six months for antidepressants for depression) increased significantly with age. Service members 18–24 years of age had the lowest rates for filling prescriptions for the minimum recommended time, while those 25 years and older had increasingly higher rates.

Performance of PTSD and Depression Measures by Race/Ethnicity of Service Member

When evaluating variations in care by race/ethnicity for the PTSD and depression cohorts, we found significantly lower rates of some types of care among black, non-Hispanic and Hispanic service members, compared to white, non-Hispanic service members. A significantly lower percentage of black, non-Hispanic service members in the PTSD cohort filled SSRI/SNRI prescriptions for 60 days after a new prescription than white, non-Hispanic service members. Similarly, a significantly lower percentage of black, non-Hispanic service members in the PTSD cohort received four psychotherapy visits or two E&M visits within the first eight weeks of a new treatment

Figure 5.10
Measure Rates by Deployment History for Active-Component Service Members in Depression Cohort, 2012–2013



NOTE: * indicates measure rates were significantly different by gender.

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episode than white, non-Hispanic service members. Similar patterns were observed for antidepressant prescriptions for the depression cohort. The percentages of black, non-Hispanic and Hispanic service members were significantly lower than white, non-Hispanic service members among those with a new prescription for having at least 12 weeks of filled antidepressant prescriptions for acute phase treatment, and for having at least six months of filled antidepressant prescriptions for continuation phase treatment.

Performance of PTSD and Depression Measures by Gender of Service Member

There were no statistically significant differences in the measure rates between male and female service members in either the PTSD cohort or the depression cohort.

Performance of PTSD and Depression Measures by Pay Grade of Service Member

Among service members in the PTSD cohort, officers (i.e., O1–O3 and O4–O6) had significantly higher rates of filled prescriptions for 60 days for SSRI/SNRI than those in the lowest pay grade (E1–E4). Among service members in the depression cohort, pay grade was significantly related to performance of three depression measures. The percentage of service members with at least 12 weeks of filled antidepressant prescriptions for acute phase treatment increased significantly with increasing pay grade. Similarly,

the percentage of service members with at least six months of filled antidepressant prescriptions for continuation phase treatment increased significantly with pay grade. In addition, the rate of receiving four psychotherapy visits or two E&M visits within the first eight weeks of a new treatment episode was significantly higher among the highest pay grade than among the lowest.

Performance of PTSD and Depression Measures by Deployment History of Service Member

Among service members in the PTSD cohort, no statistically significant differences in quality measure performance rates were observed between those with one or more deployments and those with no deployments. Among service members in the depression cohort, we identified four measures with a statistically significant difference by deployment history. Two measure rates (i.e., follow-up visit within 30 days of a new prescription [T6] and receipt of four psychotherapy visits or two E&M visits within the first eight weeks of a new treatment episode [T9]) were significantly lower among those who had deployed than among those who had not. Another two measure rates (i.e., at least 12 weeks of filled antidepressant prescriptions for continuation phase treatment [T5b] and follow-up within 30 days after discharge from a mental health hospitalization [T15b]) were significantly higher among those who had deployed than among those who had not.

Summary and Recommendations

PTSD and depression are frequent diagnoses in active-duty service members (Blakeley and Jansen, 2013). If not appropriately identified and treated, these conditions may cause morbidity that would represent a potentially significant threat to the readiness of the force. While clinical practice guidelines represent a synthesis of available research literature and clinical expertise in how to treat a condition, dissemination of clinical practice guidelines does not guarantee improvement in the care provided. Therefore, assessment of the current quality of care for PTSD and depression is an important step toward future efforts to improve care. Yet little is known about the degree to which care for these conditions provided by the MHS is consistent with guidelines.

This report provides a description of the characteristics of active-component service members who received care for PTSD and depression from the MHS (direct care or purchased care), along with an assessment of the quality of care provided for PTSD and depression using administrative data-based quality measures. Allowing a six-month time frame in 2012 for cohort entry, over 15,000 and over 30,000 active-component service members were identified who received treatment for PTSD and depression, respectively, from the MHS. We described the characteristics of these service members and the types of services received, the providers seen, and the treatment settings where care was delivered. Further, we characterized the quality of care these patients received for these two conditions using a set of administrative data-based quality measures.

The analyses presented in this report have several strengths. First, we present an enterprise view of care provided by the MHS as a whole, by including all direct care and purchased care provided by the MHS. To supplement this enterprise view, we also examined variations in care across service branches and TRICARE regions to promote collaborative learning and coordination of quality improvement efforts. Second, our results rely on administrative data, which are routinely collected for all care provided for all patients and at a much lower cost than other methods such as medical record review or patient surveys. These data can also be used to monitor changes over time in the quality of care provided. Third, we present a baseline assessment of performance related to care for PH conditions using several administrative data-based quality mea-

tures, thereby providing the MHS with several options for high-priority measures to monitor quality on an ongoing basis.

The work presented in this report also has several limitations. The first limitation is that we were able to identify patients as having a diagnosis of PTSD or depression only on the basis of codes assigned by the provider. A service member without PTSD or depression could have been assigned a PTSD or depression diagnosis code by the provider, and would have been included in the cohort in error. Alternatively, a service member with PTSD or depression who was not coded as having one of these diagnoses by an MHS provider would have been excluded from the cohort in error. To address the concern of excluding a service member who had been diagnosed from a cohort, we required only one encounter with a diagnosis code for PTSD or depression (i.e., only one outpatient encounter or inpatient stay) to be included in each respective cohort. Most patients included in the cohort had more than one qualifying encounter. Still, some patients included in the cohorts may have received this diagnosis in error and appropriately received no follow-up treatment, potentially lowering the performance rate on selected quality measures. A second limitation is that administrative data capture recorded diagnoses, procedure codes, treatment settings, providers, and medications, but cannot capture clinical details that might only be written in clinical notes in the medical record; nor do we have data on the outcomes of care. For example, we cannot characterize the type of psychotherapy or the degree to which the psychotherapy was delivered with fidelity to the evidence base or the rationale for discontinuing a medication (e.g., by the patient's choice). In the next phase of this project, we will conduct medical record review to better capture some of these clinical details.

Third, administrative data are designed to track billing and resource allocation and not to describe patterns of service utilization or quality of care provided. As a result, multiple records in the administrative data may be associated with a single health care encounter (e.g., multiple interim billings for a single encounter). These multiple records may come from different data sources (e.g., both direct and purchased care inpatient files) and from more than one provider (e.g., multiple types/specialties). Translation of these data into discrete inpatient stays and outpatient encounters was challenging. We also identified some data quality issues. For example, a coded discharge disposition seemed to contradict other information on the same patient's record (e.g., discharge status "still a patient" followed by an admission date other than the admission date associated with the "continuing" admission). Based on a detailed review of the data available to us, we created rules to increase the likelihood that inpatient and outpatient encounters were counted appropriately and quality measures were applied in a manner that adhered to detailed specifications. Despite these efforts, there may be unintended variation in the classification of the administrative data. We will continue to refine the methods used to define encounters and quality measures from these data sources based on feedback from the MHS.

Another consideration was how to assign service members to the two cohorts. We assigned a service member with both diagnoses to both the PTSD and depression cohorts, rather than defining the cohorts to be mutually exclusive. Mental health diagnostic systems (e.g., the *Diagnostic and Statistical Manual of Mental Disorders* [American Psychiatric Association, 2013]) are largely descriptive and encourage clinicians to specify multiple co-occurring conditions in order to provide a more comprehensive description of the patient's clinical picture, rather than seeking a single diagnosis. Comorbidity between these two conditions occurs frequently in clinical practice and is a complexity that clinicians deal with routinely. Patients who have co-occurring PTSD and depression should still receive appropriate care for each of these conditions. Further, assigning a patient to only one of these cohorts would ignore other relevant comorbidities (e.g., substance use disorders). Because the cohorts overlap, we avoided making direct comparisons between these two cohorts. Further, we do not present the results separately for patients who were in both cohorts because this would focus only on how care varied based on these comorbidities. In addition, how many service members are identified as being in the PTSD cohort and the depression cohort is highly dependent on the definitions used to identify the two cohorts. Future work should examine predictors of variations in care, including patient characteristics and comorbidities. Another limitation of this study is that we were unable to compare direct care and purchased care due to the small percentage of service members who obtained purchased care exclusively. In addition, we were not able to assess whether service members who moved to a different installation or MTF during their observation window experienced differences in quality of care when compared to service members who did not have this change. While service members who make these transitions should expect high quality of care, such transitions could make continuity of care more challenging. Another limitation is the exclusion of service members who separated during the 12-month period (46 percent of the PTSD cohort and 45 percent of the depression cohort).¹ While these service members were excluded because we would not be able to evaluate a full year of their care, service members who were not separated may be a less severely afflicted population. Further work is needed to understand the characteristics and care received for service members who separate within a year following a diagnosis of PTSD or depression. A final limitation is related to the set of quality measures we present. Most of the depression measures are more established than the PTSD measures, with published results from other health care systems. One of the depression measures (addressing antidepressant treatment in MDD, depressive type psychosis, and depressive disorder, not elsewhere classified) is NQF-endorsed, but none of the PTSD measures is. Thus, the PTSD measures will require additional testing and validation, and comparison to other populations as data become available.

¹ Only 3 to 5 percent of those potentially eligible (PTSD and depression, respectively) were excluded by reason of deployment.

Despite these limitations, this report provides a comprehensive, enterprise view of service members who receive care for PTSD or depression and a baseline assessment of the care they receive across several quality measures. The remainder of this chapter highlights the main findings from the report, followed by the policy implications of the findings.

Main Findings

Service Members with PTSD and Depression Have Complex Service Needs

As expected, patients in the PTSD and depression cohorts received the majority of their care at MTFs (over 90 percent had at least some direct care), yet one-third of patients in the PTSD cohort and a quarter in the depression cohort received at least some purchased care. This highlights that efforts to improve quality of care for these conditions must focus on both components of the MHS.

We found high rates of comorbid PH conditions in both cohorts. While not surprising, this highlights the complex needs of these patients. Approximately 20 percent of each cohort had an inpatient hospitalization for any reason (i.e., medical or psychiatric), but a substantial proportion of these inpatient stays were associated with the cohort condition (66 percent for PTSD; 57 percent for depression). For inpatient hospitalizations with a primary discharge diagnosis of PTSD or depression, the median length of stay was 23 days per admission for patients in the PTSD cohort and eight days for patients in the depression cohort. The median number of outpatient encounters during the one-year observation period for any reason was 41 and 30 for PTSD and depression, respectively, suggesting high utilization of health care for these patients. The majority of these visits were for non-PH conditions. The median number of visits with PTSD or depression as the primary diagnosis was ten visits and four visits, respectively. Approximately two-thirds of patients in the depression cohort and three-fourths of patients in the PTSD cohort received care associated with a cohort diagnosis (primary or secondary) from mental health specialty settings, while approximately half of each cohort had cohort-related diagnoses documented during care in primary care clinics. Further, patients saw many provider types for care associated with a cohort diagnosis. This suggests that further work to understand, measure, and support appropriate coordination of care among providers will be important for these patients. Finally, in our examination of psychotropic prescribing patterns for these patients, we found that the majority of patients received multiple psychotropic medications (both within class and across classes). Also, 35 percent of PTSD patients and 26 percent of depression patients filled a prescription for a benzodiazepine, and a majority of both cohorts filled a prescription for an opioid. These findings suggest these patients have complex treatment needs, and further work is needed to understand the appropriateness of these prescribing patterns.

Administrative Data–Based Quality Measures for PTSD and Depression Identified Important Strengths and Some Areas for Improvement

We examined the quality of care for PTSD and depression using several quality measures. While it is often difficult, or not appropriate, to directly compare results from other health care systems or studies or related measures, prior results were presented to provide important context to guide interpretation of the results from the current study. In Table 6.1, we provide an overview of measure performance. Based on our assessment of available contextual data from other sources or significant variation across service branch or TRICARE region, we highlight areas of strength for the MHS in green. These measures may represent areas where the MHS may outperform other health care systems. We highlight areas that may be high priorities for improvement in yellow. These are measures for which the performance appears lower than in other health care systems or measures for which we noted variability across service branches or TRICARE regions. For measures that are not highlighted, we were not able to make this assessment, typically due to lack of contextual data. Readers are encouraged to review the detailed results for each measure presented in Chapter Four. It should be noted that the MHS should work toward improvement on all of these measures. Nonetheless, this summary provides a preliminary dashboard to guide further quality improvement efforts for PH conditions. We provide further discussion of these results in the next sections.

While Adequate Medication Trial Rate Is Similar to or Higher than Estimates from Other Health Care Systems, Rates of Follow-Up Medication Management Are Similar but Low

Of service members in the PTSD cohort who filled a new SSRI/SNRI prescription, about two-thirds (70 percent) filled one or more prescriptions covering at least 60 days (T5), which was considered an adequate trial (Table 6.1). In addition, only 45 percent had a visit within 30 days after an SSRI/SNRI was newly prescribed. Among patients in the depression cohort with a new prescription for an antidepressant, 64 percent received medication for at least 12 weeks (acute phase [T5a]), and 44 percent received medication for at least six months (continuation phase [T5b]). These rates are similar to the level of care provided in civilian commercial plans. About 42 percent had a visit within 30 days after an antidepressant was newly prescribed (T6) (Table 6.1). Available contextual data to guide interpretation of these results are limited but suggest that this performance is similar to estimates from other health care systems. Nonetheless, given the high rates of polypharmacy observed for these patients, it will be important to focus on improving the rate of follow-up medication management visits after initiating a prescription. Increasing implementation of measurement-based care may help to ensure adequate follow-up with these patients; alternatively, applying the approaches used to obtain the high rates of follow-up after psychiatric hospitalizations may be useful as well.

Table 6.1
Overview of Quality Measure Results for PTSD and Depression

PTSD		Depression	
<i>Medication Management</i>			
Percentage of PTSD patients with a newly prescribed SSRI/SNRI medication for ≥ 60 days (PTSD-T5)	69.9%	Percentage of depression patients with a newly prescribed antidepressant medication for <ul style="list-style-type: none"> • 12 weeks (Depression-T5a) 64.4% • six months (Depression-T5b) 44.0% 	
Percentage of PTSD patients newly prescribed an SSRI/SNRI with follow-up visit within 30 days (PTSD-T6)	45.4%	Percentage of depression patients newly prescribed an antidepressant with a follow-up visit within 30 days (Depression-T6)	42.1%
<i>Psychotherapy</i>			
Percentage of PTSD patients in a new treatment episode who received any psychotherapy within four months (PTSD-T8)	73.3%	Percentage of depression patients in a new treatment episode who receive any psychotherapy within four months (Depression-T8)	52.0%
<i>Receipt of Care</i>			
Percentage of PTSD patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks (PTSD-T9)	33.6%	Percentage of depression patients in a new treatment episode with four psychotherapy visits or two evaluation and management visits within the first eight weeks (Depression-T9)	23.8%
<i>Follow-Up After Hospitalization</i>			
Percentage of psychiatric inpatient hospital discharges among patients with PTSD with follow-up <ul style="list-style-type: none"> • Within seven days of discharge (PTSD-T15a) 85.7% • Within 30 days of discharge (PTSD-T15b) 95.3% 		Percentage of psychiatric inpatient hospital discharges among patients with depression with follow-up <ul style="list-style-type: none"> • Within seven days of discharge (Depression-T15a) 86.2% • Within 30 days of discharge (Depression-T15b) 95.1% 	
<i>Inpatient Utilization</i>			
Number of psychiatric discharges per 1,000 patients with PTSD (PTSD-RU1)	200	Number of psychiatric discharges per 1,000 patients with depression (Depression-RU1)	175

NOTE: The definition of depression includes more diagnostic codes than only those for major depressive disorder. See Appendix B for descriptions of the codes used to define the study cohort and the eligible populations for each quality measure.

A High Proportion of Service Members with PTSD or Depression Received at Least Some Psychotherapy, but the Number of Visits May Be Inadequate to Allow Delivery of Evidence-Based Psychotherapy

A high proportion of patients in both cohorts received at least one psychotherapy visit (i.e., individual, group, or family therapy) during the observation period—approximately 90 percent of the PTSD cohort and 81 percent of the depression cohort (data not shown in Table 6.1). Yet the timing and dose may be inadequate to qualify as delivery of evidence-based psychotherapy. Approximately 73 percent of active-component service members with a new treatment episode for PTSD were found to have at least one visit for psychotherapy within four months of when the new PTSD episode started (T8); for patients in the depression cohort, 52 percent received at least one psychotherapy visit within four months of a new treatment episode for depression (T8) (Table 6.1). Although one psychotherapy visit is unlikely to achieve a response, this measure estimates the proportion of service members who started psychotherapy. A much lower percentage (34 percent) of service members in the PTSD cohort were found to have had four psychotherapy visits or two E&M visits within eight weeks of the start of a new treatment episode for PTSD (T9); this rate was 24 percent for patients in the depression cohort (T9) (Table 6.1). Patients in a new treatment episode are receiving care for PTSD or depression after a period of at least six months of receiving no care for that condition. Focusing on a new treatment episode excludes patients who may be receiving maintenance treatment, which may occur appropriately less frequently. Therefore, these patients in a new treatment episode are typically not receiving an adequate level of treatment within the first eight weeks. This suggests the MHS largely succeeds in providing patients with an initial visit (based on receiving any psychotherapy) but could improve rates of delivering ongoing treatment.

The MHS Is a Leader in Achieving High Rates of Follow-Up After Psychiatric Hospitalization

Our results suggest that the MHS has achieved high rates of follow-up of active-component service members in the PTSD and depression cohorts after a hospitalization with a mental health diagnosis. The high rates of follow-up after psychiatric hospitalization (Table 6.1) relative to other health care systems (86 percent within seven days [T15a] and 95 percent within 30 days [T15b] for PTSD, and 86 percent within seven days [T15a] and 95 percent within 30 days [T15b] for depression) may be related to a 2011 MHS mandate describing follow-up procedures for missed behavioral health appointments, including those after mental health hospital discharges (Department of the Army, 2011). The rates of performance, although high compared to the other PTSD and depression measures, still allow room for improvement given the potential risk of adverse events during the immediate postpsychiatric discharge period. A recent MHS memo emphasized the need for follow-up within the first 72 hours after discharge, including avoidance of weekend and federal holiday discharges to support

this effort (Department of the Army, 2014). Further investigation to better understand how these high rates of follow-up were achieved would be useful in developing quality improvement efforts for enhancing follow-up and care coordination in other contexts. Some strategies may be generalizable to other systems of care. In addition, further work to understand whether this follow-up and the timing of follow-up (e.g., follow-up same day as discharge versus within seven days) predict outcomes would be informative.

Quality of Care for PTSD and Depression Varied by Service Branch, TRICARE Region, and Service Member Characteristics

We also assessed the performance of each quality measure by service branch, TRICARE region, and service member characteristics, including age, gender, race/ethnicity, pay grade, and deployment history. We provide an overview of statistically significant results in Table 6.2, showing the characteristics that exhibited significant variation for each quality measure. We also present further detail about which subgroups had statistically significant differences across measure rates in Table 6.3. Several large and statistically significant differences in quality of care were observed across branches of service and TRICARE region. Rates of follow-up within seven days after a mental health hospitalization (T15a) differed across branches of service by up to 15 percent and 14 percent in the PTSD and depression cohorts, respectively. Rates of follow-up within 30 days after a new prescription of SSRI/SNRI (T6) differed among TRICARE regions by up to 11 percent in the PTSD cohort. Rates of psychotherapy within four months of a new treatment episode (T8) also varied across TRICARE regions by up to 11 percent in the depression cohort. Similarly, we observed several large and statistically significant differences in measure rates by service member characteristics. Among service members in the PTSD and depression cohorts, rates of adequate filled prescriptions for SSRI/SNRI for PTSD (T5) and antidepressants for depression (T5a and T5b) varied by pay grade by up to 17, 22, and 29 percent, respectively. Similarly, rates of adequate filled prescriptions for SSRI/SNRI for PTSD (T5) and antidepressants for depression (T5a and T5b) varied by age by up to 11, 20, and 26 percent, respectively. Taking these large differences in performance based on service branch, TRICARE region, and service member characteristics into consideration may be useful in designing effective quality improvement initiatives.

Policy Implications

Improve the Quality of Care for Psychological Health Conditions Delivered by the Military Health System

The results presented in this report represent one of the largest assessments of quality of care for PTSD and depression for service members ever conducted. This assessment highlighted that, while there are key strengths in some areas, quality of care for psy-

Table 6.2
Summary of Service and Member Characteristics with Statistically Significant Differences in Quality Measure Performance for PTSD and Depression

Measures	Service Branch	Region	Age	Gender	Race/Ethnicity	Pay Grade	Deployment History
PTSD measures							
New SSRI/SNRI for ≥ 60 days (T5)		X	X		X	X	
Visit in 30 days for new SSRI/SNRI (T6)	X	X					
Psychotherapy within 4 months of NTE (T8)					X ^a		
Care within 8 weeks of NTE (T9)					X		
Visit in 7 days after MH discharge (T15a)	X	X					
Visit in 30 days after MH discharge (T15b)	X	X					
Depression measures							
New antidepressant for ≥ 12 weeks (T5a)	X	X	X		X	X	
New antidepressant for ≥ 6 months (T5b)	X	X	X		X	X	X
Visit in 30 days for new antidepressant (T6)	X	X	X				X
Psychotherapy within 4 months of NTE (T8)	X	X					
Care within 8 weeks of NTE (T9)	X	X	X			X	X
Visit in 7 days after MH discharge (T15a)	X	X					
Visit in 30 days after MH discharge (T15b)	X	X					X

^a The only comparison that was significant for PTSD-T8 was Black, Non-Hispanic versus Other/Unknown ($P < 0.05$).

Table 6.3
Summary of Statistically Significant Differences in Quality Measure Rates by Service and Member Characteristics for PTSD and Depression

PTSD Measure	Significant Results
New SSRI/SNRI for ≥ 60 days (T5)	Region: West > South Age: 35–44 > 18–24 Race/Ethnicity: White, non-Hispanic/Hispanic > Black, non-Hispanic Pay Grade: O4–O6/O1–O3 > E1–E4
Visit in 30 days for new SSRI/SNRI (T6)	Branch: Marine Corps > Army Region: North/Overseas > South
Psychotherapy within 4 months of NTE (T8)	Race/Ethnicity: Other/Unknown > Black, non-Hispanic
Care within 8 weeks of NTE (T9)	Race/Ethnicity: White, non-Hispanic > Black, non-Hispanic
Visit in 7 days after MH discharge (T15a)	Branch: Army/Air Force > Marine Corps/Navy Region: South/West > North
Visit in 30 days after MH discharge (T15b)	Branch: Army > Navy Region: South/West > North
Depression Measure	Significant Results
New antidepressant for ≥ 12 weeks (T5a)	Branch: Air Force/Navy > Army; Air Force > Marine Corps > Army Region: West/Overseas/North > South Age: 45–64 > 25–34 > 18–24; 35–44 > 25–34 Race/Ethnicity: White, non-Hispanic > Hispanic > Black, non-Hispanic Other/Unknown > Black, non-Hispanic Pay Grade: O4–O6 > E5–E9 > E1–E4; O1–O3 > E5–E9/E1–E4
New antidepressant for ≥ 6 months (T5b)	Branch: Air Force/Navy > Army, Air Force/Navy > Marine Corps Region: West/North > South Age: 45–64 > 25–34 > 18–24; 35–44 > 25–34 Race/Ethnicity: White, non-Hispanic > Hispanic > Black, non-Hispanic Other/Unknown > Black, non-Hispanic Pay Grade: O4–O6 > E5–E9 > E1–E4; O1–O3 > E5–E9/E1–E4 Deployment History: Deployed > Not deployed
Visit in 30 days for new antidepressant (T6)	Branch: Air Force/Marine Corps/Navy > Army Region: Overseas > South Age: 18–24 > 35–44 Deployment History: Not deployed > Deployed
Psychotherapy within 4 months of NTE (T8)	Branch: Army/Marine Corps/Navy > Air Force Region: Overseas > North/South/West; West > South
Care within 8 weeks of NTE (T9)	Branch: Air Force/Marine Corps/Navy > Army Region: North > South/West Age: 35–44 > 18–24 Pay Grade: O4–O6 > E1–E4 Deployment History: Not deployed > Deployed
Visit in 7 days after MH discharge (T15a)	Branch: Air Force > Army; Army/Air Force > Marine Corps/Navy Region: South/West/Overseas > North
Visit in 30 days after MH discharge (T15b)	Branch: Army/Air Force > Marine Corps/Navy Region: South/West > North Deployment History: Deployed > Not deployed

chological health conditions delivered by the MHS should be improved. For example, more patients should receive a follow-up medication management visit following the receipt of a new medication for PTSD or depression. Similarly, although the rates are similar to those of other health care systems, there is room for improvement in providing an adequate trial once a service member has started medication for PTSD or depression. While a relatively high proportion of service members received at least one psychotherapy session, a much lower proportion were found to have had four psychotherapy visits or two E&M visits within eight weeks of the start of a new treatment episode for PTSD or depression. This suggests that MHS needs to ensure that service members receive an adequate intensity of treatment following treatment initiation. The MHS also demonstrated important strengths. We observed higher quality of care in providing timely outpatient follow-up after a psychiatric hospitalization, an essential service to minimize adverse consequences for higher risk patients. Our results suggest that the MHS has the opportunity to be a leader in providing high-quality care for psychological health conditions and should continue to pursue efforts toward this goal.

Establish an Enterprise-Wide Performance Measurement, Monitoring, and Improvement System That Includes High-Priority Standardized Metrics to Assess Care for Psychological Health Conditions

Currently, there is no enterprise-wide system for performance monitoring on quality of PH care. A separate system for PH is not necessarily required; high-priority PH measures could be integrated into an enterprise-wide system that assesses care across medical and psychiatric conditions. The recent review of the MHS (Department of Defense, 2014b) highlighted the need for such a system as well. Although the selected quality measures presented in this report highlight areas for improvement, additional quality measures for PH conditions should be developed and evaluated, including examining their link with outcomes. Furthermore, an infrastructure is necessary to support the implementation of quality measures for PH conditions on a local and enterprise basis, monitoring performance, conducting analysis of performance patterns, and evaluating the effect of quality improvement strategies. Pending available resources, this function could be executed by a DoD center focused on psychological health (e.g., DCoE) or additional psychological health quality measures could be integrated into ongoing efforts conducted by DoD Health Affairs.

Integrate Routine Outcome Monitoring for Service Members with PH Conditions as Structured Data in the Medical Record as Part of a Measurement-Based Care Strategy

Measurement-based care has become a key strategy in the implementation of clinical programs to improve mental health outcomes (Harding et al., 2011). A recent review suggested that evidence indicating that feedback on patient-report outcomes to providers actually improves patient outcomes is mixed, but that feedback appears to be

more effective when the data are used as part of a patient management system (Boyce and Browne, 2013). Currently, the ability to routinely monitor clinical outcomes for patients receiving PH care in the MHS is limited. When clinicians assess patient symptoms or functioning using a structured instrument (e.g., PHQ-9 to assess depression symptoms), the resulting score is entered as free text within a clinical note within AHLTA. As a consequence, scores are not easily accessible in existing administrative data. Further, these data are not easily linked with quality metrics. Routine monitoring for PTSD, depression, and anxiety disorders is now mandated by policy (Department of Defense, 2013) using the Behavioral Health Data Portal (BHDP) (U.S. Department of the Army, undated), and the services are working toward full implementation of this policy. While encouraging routine symptom monitoring is a positive step, BHDP is separate from the chart, and BHDP scores must be entered manually by the clinician.

Quality Measure Results for PH Conditions Should Be Routinely Reported Internally, Enterprise-Wide, and Publicly to Support and Incentivize Ongoing Quality Improvement and to Facilitate Transparency

All health care systems can identify areas in which care should be improved. Care should adhere more closely to clinical practice guidelines and achieve improved outcomes. Routine internal reporting of quality measure results (both MHS-wide and at the service level) provides valuable information to identify gaps in quality, target quality improvement efforts, and evaluate the results of those efforts. Analyses of variations in care across service branches, TRICARE regions, or patient characteristics can also guide quality improvement efforts. Further, these data could provide a mechanism to reward or incentivize improvements in quality metrics. While VHA and civilian health care settings have used monetary incentives for providers and administrators to improve performance, the MHS could provide special recognition or awards in place of financial incentives. In addition, reporting of selected quality measures for PH conditions could be required under contracts with purchased care providers (Institute of Medicine, 2010). Reporting quality measure results externally provides transparency, which encourages accountability for high-quality care. In addition, external reporting allows comparisons with other health care systems that report publicly. Finally, external reporting would allow the MHS to demonstrate improvements in performance over time to multiple stakeholders, including service members and other MHS beneficiaries, providers, and policymakers. The MHS may opt to externally report results from quality measures only with adequate validation, while a broader set of quality measures could be used internally for descriptive purposes and to support quality improvement activities.

Investigate the Reasons for Significant Variation in Quality of Care for PH Conditions by Service Branch, Region, and Service Member Characteristics

As noted above, we found several large and statistically significant differences in measure rates by service branch, TRICARE region, and service member characteristics, many of which may represent clinically meaningful differences. Understanding and minimizing variations in care by personal characteristic (e.g., gender, race/ethnicity, and geographic region) is important to ensure that care is equitable, one of the six aims of quality of care improvement in the seminal report *Crossing the Quality Chasm* (Institute of Medicine, 2001). Exploring the structure and processes used by MTFs and staff in high- and low-performing service branches and TRICARE regions may help to identify promising improvement strategies for, and problematic barriers to, providing high-quality care (Institute of Medicine, 2001). Analyses of performance by individual MTFs and by service member subgroups at MTFs may inform the question of how to modify structure and processes to maximize improvement. Further investigations may also determine whether some of these variations may be due to methodological considerations, thus suggesting strategies for improvement in the quality measurement process.

Final Thoughts

This report represents an important first step in describing quality of care for PTSD and depression among service members who received treatment from the MHS. The results presented here should be useful to the MHS in identifying high-priority next steps to support continuous improvement in the care the MHS delivers to service members and their families.

Technical Specifications for Administrative Data Quality Measures for PTSD

This appendix provides technical specifications for the implementation of the administrative data–based PTSD quality measures described in the body of the report. It is divided into the following sections:

1. **Diagnostic cohort:** This section describes the eligibility criteria for inclusion used to place service members in the PTSD cohort. This cohort forms the population whose care is evaluated during the 12 months after entry into the diagnostic cohort.
2. **Key definitions:** This section describes the technical specifications for key definitions frequently referenced throughout the remainder of this document. These definitions include clarifying notes where applicable.
3. **Administrative data quality measures for PTSD:** These sections describe the technical specifications for each PTSD quality measure, including the following:
 - a. **Measure summary**—measure statement, numerator, denominator, measure type (e.g., process, outcome), and care setting (e.g., outpatient).
 - b. **Numerator specifications**—definitions of variables used in the numerator and relevant data sources.
 - c. **Denominator specifications**—definitions of variables used in the denominator, relevant data sources, and denominator exclusions, if applicable.
 - d. **Measure background**—source of the measure, any adaptation to the measure that was made by the project team in implementation, clinical practice guideline support for the measure, existing research evidence behind the measure, and feasibility of measure implementation.

The study population includes service members only and excludes their spouses and other dependents, retirees and their dependents. The rules applied for ensuring that patients in the cohort were engaged in care with the MHS match those applied in the VA evaluation. The application of these rules defining engagement seeks to demonstrate a minimum level of interaction by the member with the MHS as a care provider.

The cohort diagnostic-code requirement of only one code-specific encounter was chosen to create in the cohorts the broadest population of patients with PTSD. Cohort-inclusion in the VA Mental Health Evaluation was based on the study diagnosis with the most encounters (out of five possible study diagnoses) during the measurement period and was limited to one study diagnosis of interest, unlike this study where a patient may have been included in both PTSD and depression cohorts.

The administrative data sources used for this study are shown in Table A.1.

While four of these data sets are distinguished as outpatient/inpatient and provider/facility, they may all apply to the same date(s) of service. The interpretation of crossover of data lines of service within these data sets was challenging. Also, variables distinguishing characteristics of care provided (e.g., place of service, provider specialty) vary greatly among the data sets both in content and level of detail. These inconsistencies presented challenges to classifying and describing care across these data sets. Specific rules were developed to categorize data in as standardized a manner as possible across all data sets. The rules dealt with issues such as identifying providers of similar specialty, handling of same-day encounters with individual providers, and classifying care by place of service. See Appendix C for a summary of the rules applied and the rationale behind them.

The PDTS was used to evaluate all pharmacologic care provided during the measurement period. The PDTS database used included a scrambled SSN of the plan sponsor. It was assumed that the vast majority of the sponsors were the active-component members, but relationship to the sponsor was not an included variable in the data set. To address this problem, cross-checks between PDTS and VM6 Beneficiary files were

Table A.1
Administrative Data Content of Data Sources for Direct Care and Purchased Care

Content	Data Source
Outpatient services delivered within MTFs (direct care)	Comprehensive Ambulatory Professional Encounter Record (CAPER)
Inpatient services delivered within MTFs (direct care)	Standard Inpatient Data Record (SIDR)
Provider services delivered outside of MTFs (purchased care)	TRICARE Encounter Data—Non-Institutional (TED-NI)
Facility services delivered outside of MTFs (purchased care)	TRICARE Encounter Data—Institutional (TED-I)
TRICARE eligibility and enrollment	VM6 Beneficiary Level
TRICARE eligibility/active-duty status	Active Duty Master File
Dispensed medication	Pharmacy Data Transaction Services (PDTS)
Service characteristics	Defense Manpower Data Center (DMDC)
Deployment history	Contingency Tracking System—Deployments

made of member age and gender. Cases that were not matches were deleted from the PDS database.

Diagnostic Cohort

The following describe the criteria applied for member inclusion into the PTSD diagnostic cohort for this study.

Eligibility for Cohort Inclusion

Active-component service members were eligible for inclusion in the PTSD cohort. These individuals were most likely enrolled in TRICARE Prime, Standard, or Extra. Active-component spouses and dependents and all retirees and dependents were ineligible. Eligibility was calculated based on all care received (i.e., direct care and/or purchased care). Members needed to be present in the Active Duty Master File (which was current through September 2012) for inclusion.¹

PTSD Cohort

Inclusion in the PTSD cohort required a condition-related diagnosis during the observation period, and a minimal level of engagement during that time with TRICARE-provided care for any health reason.

Condition-related diagnosis. During the six-month period from January 1, 2012 through June 30, 2012, active-component members were identified who had a PTSD diagnosis occurring in at least one TRICARE-provided inpatient episode or one TRICARE-provided outpatient encounter. The first diagnosis of PTSD during the six-month period was identified using the ICD-9-CM code (primary or secondary) listed in Table A.2 associated with any TRICARE encounter. The date of the first PTSD diagnosis defined the start date of the 12-month measurement period during which care for PTSD was observed. One PTSD encounter was required for cohort entry. We chose to require one encounter to be more inclusive but acknowledge that we may be including patients whose PTSD diagnoses were not confirmed. On the other

Table A.2
Qualifying ICD-9-CM Codes for PTSD Cohort Inclusion

ICD-9-CM Code	Description
309.81	Posttraumatic stress disorder

¹ Active-duty service members are eligible to receive care at MTFs or through the TRICARE network through TRICARE Prime. A check of both the eligibility and enrollment files occasionally showed unexpected gaps in coverage, so we used the Defense Manpower Data Center's Active Duty Master File to verify that the service member was still serving on active duty.

hand, one encounter meant that we would also not exclude those patients with a valid diagnosis who might not have received indicated follow-up care.

Engaged with and eligible for MHS care. Patients selected for the cohort also had to have at least one TRICARE-provided inpatient episode or two outpatient encounters *for any reason* during the 12-month measurement period starting with the first qualifying diagnosis of PTSD, and during that same 12-month measurement period, could not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files.

Exclusions

Measure denominator exclusions, if any, were made on a measure-by-measure basis (e.g., in hospice treatment, resident of long-term care facility) as indicated for the measure, and these are specified in the measure's technical specifications. In all cases, we strove to follow the technical specifications as indicated by the measure's source. In general, denominator exclusions for inpatient admissions were allowed when the window of time for the recommended outpatient care was short (e.g., 30 days) or the measure assessed a minimum amount of care within a relatively short time (e.g., four psychotherapy visits or two E&M visits within eight weeks). This exclusion was based on the assumption that the admission might have interfered with the ability to access the outpatient care. Patients were excluded from a measure denominator if the time remaining in the study period after requirements for measure eligibility were met was less than the specified time period allowed for the provision of the care being evaluated.

Comorbidity

If an active-component member was included in both the PTSD and depression cohorts, applicable quality measures for both conditions were applied.

Table A.3
Key Definitions

Variable	Definition	Questions/Notes
New treatment episode: PTSD	The new treatment episode (NTE) for PTSD applies to patients in the PTSD cohort and is defined as:	

Table A.3—Continued

Variable	Definition	Questions/Notes
	<p>An outpatient visit with a primary diagnosis of PTSD (Table A.2) AND No outpatient visits in the prior six months for PTSD (primary or secondary diagnosis) from CAPER and TED-NI AND No treatment with an antidepressant, antipsychotic, or prazosin in the prior six months based on the PDS AND No admission or transfer to an inpatient or residential bed from SIDR or TED-I in the prior six months with a diagnosis (primary or secondary) of PTSD (Table A.2) and when the PTSD diagnosis is not primary, a primary psychiatric diagnosis (ICD-9 codes: 290.xx–319.xx).</p> <p>The first visit after the clean period in which PTSD is the primary diagnosis will indicate the start date for the new treatment episode.</p> <p>The inclusion of the required PTSD-related medication “clean period” prior to the NTE was designed to create a higher degree of certainty that the case identified was a true NTE. While some PTSD medications are used for unrelated reasons, it was not possible to identify which cases with medication treatment in the prior six months represented treatment for PTSD and which did not. The care of NTEs evaluated in this report is limited to those diagnosed in an outpatient setting, since the selected quality measures focus on outpatient care. Patients whose NTEs were initiated by an inpatient stay are not included in the denominators of measures focusing on NTE care.</p> <p>If a patient had more than one PTSD NTE during the measurement period, performance of care was evaluated for only the first NTE.</p>	“Outpatient visit” does not include telephone/email encounters
Antidepressant treatment	Treatment with (dispensing of) a drug listed in the PDS of Therapeutic Class THERCLSS 281604 (antidepressants) OR Product Name PRODNAME Savella	Product Name is used for drugs not consistently identified via the Therapeutic Class
Antipsychotic treatment	Treatment with (dispensing of) a drug listed in the PDS of Therapeutic Class THERCLSS 281608 (antipsychotics) OR Product Name (PRODNAME) perphenazine-amitriptyline, Symbyax, olanzapine + fluoxetine, prochlorperazine edisylate, or prochlorperazine maleate	Product Name is used for drugs not consistently identified via the Therapeutic Class
Prazosin treatment	Treatment with (dispensing of) a drug listed in the PDS using Product Name (PRODNAME) prazosin, Minipress, Minipress XL, Vasoflex, Pressin, or Hypovase	

Table A.3—Continued

Variable	Definition	Questions/Notes
Outpatient psychotherapy	Any study diagnosis-related (primary or secondary diagnosis for PTSD from Table A.2) outpatient clinic encounters from CAPER or TED-I for which the following CPT codes are present:	CPT codes for psychiatric services changed significantly in 2013
	<p>Pre-2013:</p> <ul style="list-style-type: none"> • 90804, 90805, 90806, 90807, 90808, 90809 Office or other outpatient facility, insight oriented, behavior modifying and/or supportive psychotherapy: Face-to-face with patient, with or without Evaluation and Management (E&M) services, 20–80 minutes duration • 90810, 90811, 90812, 90813, 90814, 90815 Office or other outpatient facility, interactive psychotherapy: Using play equipment, physical devices, language interpreter, or other mechanisms of nonverbal communication, with or without E&M services, 20–80 minutes duration • 90816, 90817, 90818, 90819, 90821, 90822 Inpatient hospital, partial hospital or residential treatment facility: Face-to-face with patient, with or without E&M services, 20–80 minutes duration • 90823, 90824, 90826, 90827, 90828, 90829 Inpatient hospital, partial hospital or residential treatment facility, interactive psychotherapy: Using play equipment, physical devices, language interpreter, or other mechanisms of nonverbal communication, with or without E&M services, 20–80 minutes duration • 90845 Psychoanalysis • 90853 Group psychotherapy (other than of a multiple-family group) • 90857 Interactive group psychotherapy 	Inpatient codes included for partial hospitalization setting
	<p>2013 forward:</p> <ul style="list-style-type: none"> • +90785, 90832, +90833, 90834, +90836, 90837, +90838 Psychotherapy, with patient and/or family member: with or without E&M services, 16-53+ minutes duration. • 90839, +90840 Psychotherapy for crisis: First 60 minutes with additional 30-minute add-on code (+90840) • 90845 Psychoanalysis 	“+” = add-on code. In 2013, interactive complexity is an add-on code (+90785), and codes are no longer site-specific.

Table A.3—Continued

Variable	Definition	Questions/Notes
Outpatient evaluation and management (E&M) visit	<ul style="list-style-type: none"> • 90853 Group psychotherapy (other than of a multiple family group) <p>Psychotherapy sessions of less than 30 minutes duration are included in this definition. While sessions of this duration were not very frequently utilized, these sessions may extend to up to 37 minutes in the 2013 coding rules and therefore, may be significant in terms of a therapeutic treatment session.</p>	
	<p>Diagnosis-related (primary or secondary diagnosis from Table A.2 for PTSD) E&M visit from CAPER or TED-NI. E&M visit codes are used by qualified health care professionals who can prescribe medication. The E&M visit is used to approximate and include a medication management visit, although E&M visits are likely to overestimate actual medication management visits. An E&M visit is defined as any diagnosis-related encounter for which one of the following CPT codes is present:</p>	
Outpatient evaluation and management (E&M) visit	<ul style="list-style-type: none"> • 90805, 90807, 90809, 90811, 90813, 90815, 90817, 90819, 90822, 90824, 90827, 90829 Office or other outpatient or inpatient facility: Individual psychotherapy with medical evaluation and management services, duration 20–80 minutes 	<p>Inpatient codes included for partial hospitalization setting</p>
	<ul style="list-style-type: none"> • 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 Office or other outpatient services: evaluation and management services 	
	<ul style="list-style-type: none"> • 99241, 99242, 99243, 99244, 99245 Office or other outpatient consultations 	
	<ul style="list-style-type: none"> • 90862 Pharmacological management, including prescription use, and review of medication with no more than minimal medical psychotherapy 	<p>Code 90862 discontinued in 2013</p>
	<ul style="list-style-type: none"> • +90863 Pharmacological management, including prescription and review of medication, when performed with psychotherapy services (for those providers who cannot report E&M codes). 	<p>New code in 2013. Not for use by physicians or other qualified health care professionals</p>
Inpatient stays	<p>The primary sources of administrative data for inpatient stays were SIDR (direct care) and TED-I (purchased facility services). See Appendix C for the rules used to identify inpatient care (acute and nonacute) from these data.</p>	

Table A.3—Continued

Variable	Definition	Questions/Notes
Outpatient visits	The primary sources of administrative data for outpatient visits were CAPER (direct care) and TED-NI (purchased provider services). See Appendix C for the rules used to identify outpatient care from these data.	

**Table A.4
PTSD-T5: Duration of SSRI/SNRI Treatment**

Measure Summary		
Measure statement	Percentage of PTSD patients with a newly prescribed SSRI/SNRI medication for ≥ 60 days	
Numerator	PTSD patients who receive newly prescribed SSRIs/SNRIs for ≥ 60 days	
Denominator	Patients with PTSD with a new prescription for an SSRI/SNRI	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Duration of SSRI/SNRI treatment	At least 60 days of SSRI/SNRI dispensed during the allotted time period. Any dispensing regimen is acceptable as long as the gaps in medication treatment do not exceed a total of 20 days over an 80-day period "Treatment days" are equal to the sum all the days' supply for each script that falls in the treatment period, regardless of overlapping prescriptions or prescriptions for the same or different applicable medications. If a date of dispensing falls at the end of the measurement interval, the days' supply that fall after the end of the interval are not counted. For example, a prescription of 90 days' (3 months) supply dispensed on the 60th day will contribute 20 days' supply to the 80-day interval.	PDTS
Denominator Specifications		Data Source
Patients with PTSD	See Diagnostic Cohort—PTSD in Key Definitions. (See measure application algorithm below.)	CAPER, TED-NI, SIDR, TED-I
New prescription	Prescription for SSRI/SNRI in the 30 days prior or 14 days after the first encounter during the measurement period with a diagnosis for PTSD and no SSRI/SNRI prescription in the 90 days prior to this prescription.	PDTS

Table A.4—Continued

Denominator Specifications	Data Source
SSRI/SNRI Selective serotonin reuptake inhibitors (SSRIs): Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac, Prozac Weekly, Sarafem, Selfemra) Fluvoxamine (Luvox, Luvox CR) Olanzapine-fluoxetine (Symbyax) Paroxetine (Paxil, Paxil CR, Pexeva) Sertraline (Zoloft) Serotonin and norepinephrine reuptake inhibitors (SNRIs): Desvenlafaxine (Khedezla, Pristiq) Duloxetine (Cymbalta) Levomilnacipran (Fetzima) Milnacipran (Savella) Venlafaxine (Effexor, Effexor XR)	PDTS: Product Name (PRODNAME) and Days Supply (DAYSUPPLY)

Table A.4—Continued

Denominator Specifications	Data Source
Measure application algorithm	CAPER, TED-NI, SIDR, TED-I
<p>The following algorithm is based on the implementation of NQF measure #0105 Antidepressant Medication Management on which this measure is based. It has been adapted to reflect the data sources used for this study.</p>	
<p>Step 1: Identify all members who met at least one of the following criteria during the Intake Period (measurement year).</p>	
<ul style="list-style-type: none"> • At least one primary diagnosis of PTSD in an outpatient, emergency department (ED), intensive outpatient or partial hospitalization setting, OR • At least two visits in an outpatient, ED, intensive outpatient or partial hospitalization setting on different dates of service with any diagnosis of PTSD, OR • At least one inpatient (acute or nonacute) claim/encounter with any diagnosis of PTSD 	
<p>Code to Identify PTSD</p>	
<p>ICD-9-CM Diagnosis: 309.81</p>	
<p>CPT Codes to Identify Outpatient Visit Type</p>	
<ul style="list-style-type: none"> • Emergency Department: 99281–99285 • Outpatient psychotherapy: 90804–90815 • Education for self-management: 98960–98962 • Group education: 99078 • Outpatient E&M: 99201–99205, 99211–99215, 99217–99220 • Outpatient consultation: 99241–99245 • Home visit: 99341–99345, 99347–99350, 99510 • Preventive medicine: 99384–99387, 99394–99397, 99401–99404, 99411, 99412 	
<p>Healthcare Common Procedure Coding System (HCPCS):</p>	
<ul style="list-style-type: none"> • Social work, activity therapy, self-care education, group therapy: G0155, G0176, G0177, G0409–G0411 • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034–H0037, H0039, H0040, H2000, H2001, H2010–H2020 • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 	
<p>CPT codes and place of service (POS)</p>	
<ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 9083290834, 9083690840 • Inpatient/partial hospitalization psychotherapy: 9081690819, 9082190824, 9082690829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: 90863* • Electroconvulsive therapy (ECT): 90870, • Biofeedback: 90875, 90876 • Inpatient E&M: 99221–99223 • Subsequent hospital care: 99231–99233, 99238, 99239 • Inpatient consultation: 99251–99255 	
<p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit. See Appendix C for rules used to identify outpatient encounters from CAPER and TED-NI.</p>	
<p>Step 2: Determine the Index Episode Start Date (IESD). For each member identified in step 1, identify the date of the earliest encounter during the Intake Period with any diagnosis of PTSD. If the member had more than one encounter during the Intake Period, include only the first encounter.</p>	
<p>Step 3: Identify the Index Prescription Start Date (IPSD). The IPSD is the date of the earliest dispensing event for an SSRI/SNRI medication during the period of 30 days prior to the IESD (inclusive) through 14 days after the IESD (inclusive). Exclude members who did not fill a prescription for an SSRI/SNRI medication during this period.</p>	
<p>Step 4: Test for Negative Medication History. Exclude members who filled a prescription for an SSRI/SNRI in the 90 days (3 months) prior to the IPSD.</p>	
<p>Step 5: Calculate continuous enrollment. Members must be continuously enrolled (did not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files) for 90 days (3 months) prior to the IESD to 80 days after the IESD.</p>	

Table A.4—Continued

Denominator Specifications	Data Source
Exclusions	Patient with a prescription filled for SSRI/SNRI in the 90 days prior to the date of the IPSD PDS
Measure Background	
Measure Source	Adapted from: Farmer, C., Watkins, K.E., Smith, B., Paddock, S.M., Woodroffe, A., Solomon, J., Sorbero, M., Hepner, K., Forrest, L., Shugarman, L., Call, C., and Pincus, H.A., Program Evaluation of VHA Mental Health Services: Medical Record Review Report, Alexandria, VA: Altarum Institute and RAND-University of Pittsburgh Health Institute, 2010.
Rationale for Measure Inclusion	<p>Source/Adaptation This measure is adapted from the VA Mental Health Program (Farmer et al., 2010; Sorbero et al., 2010; Watkins et al., 2011). In that evaluation, this measure was applied to PTSD patients with a new treatment episode and assessed whether an SSRI/SNRI trial occurred. Rather than focusing on PTSD patients with a new treatment episode, this measure applies to all PTSD patients newly treated with an SSRI/SNRI, as long as there was no treatment with the same class of drug in the prior 90 days. This measure can be implemented using exclusively administrative data as defined here. It may also be implemented using medical record data to supplement the administrative data with documented reasons for early medication discontinuation.</p> <p>Guideline Support This indicator is based on recommendations in the 2010 VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress (2010). The guideline strongly recommends selective serotonin reuptake inhibitors (SSRIs) or serotonin and norepinephrine reuptake inhibitors (SNRIs) as a monotherapy treatment option for PTSD. The CPG authors rate the strength of the evidence supporting this recommendation as an "A," which is reserved for recommendations based on "good evidence that the intervention improves important health outcomes" with the added requirement that "benefits substantially outweigh harm" (Department of Veterans Affairs and Department of Defense, 2010, p. 7). Clinically, "A" grades indicate a strong recommendation for clinicians to provide the treatment to eligible patients. A trial of an SSRI or SNRI should be optimized before shifting to a new treatment strategy. The VA/DoD Clinical Practice Guideline recommends that side effects and outcomes be monitored for a minimum of eight weeks before a clinician proceeds to a new treatment trial for nonresponsive patients (2010). The grade for this timing recommendation is "C," which indicates that there exists "fair" evidence to conclude that the recommendation "can improve health outcomes" but that the "balance of benefits to harms is too close to justify a general recommendation" (Department of Veterans Affairs and Department of Defense, 2010). Given the low grade of evidence supporting the timing for this measure, it will be important to continue to validate this measure to ensure that the threshold provides a maximized opportunity for an SSRI/SNRI to begin to reduce symptoms while minimizing the length of the time spent on unsuccessful medication trials.</p> <p>Research Evidence Empirical support, from randomized control trials and meta analyses of those trials, exists to justify the use of SSRIs and SNRIs as a first-line agent for the treatment of PTSD (Brady et al., 2000; Davidson, Rothbaum, et al., 2001; Foa, Davidson, and Frances, 1999; Jonas et al., 2013; Stein, Ipser, and Seedat, 2009). A recent review of PTSD pharmacotherapy indicated that the largest and greatest number of trials showing efficacy have been with the SSRIs (Ipser and Stein, 2012). Venlafaxine, an SNRI, has had positive results in two trials with more than 800 participants with non-combat related PTSD (Davidson, Baldwin, et al., 2006; Davidson, Rothbaum, et al., 2006). PTSD practice guidelines from the Society for Traumatic Stress Studies and the American Psychiatric Association echo the recommendations of the VA/DoD CPG (American Psychiatric Association, 2004; Benedek et al., 2009; Foa, Keane and Friedman, 1999). In contrast, a 2008 IOM report concluded that there was insufficient evidence to categorize SSRIs as an effective treatment for PTSD (Institute of Medicine, 2008). Note, however, that a subsequent IOM report on treatment of PTSD among service members stated that there "are several effective pharmacotherapies for treating PTSD, particularly SSRIs" (Institute of Medicine, 2012, p.273).</p>

Table A.4—Continued

Denominator Specifications	Data Source
Feasibility	<p data-bbox="303 295 1202 392">This measure was implemented as an administrative data measure using PDTS as the data source for the numerator. Calculating the numerator from PDTS data was quite feasible using the Days Supply variable indicating the number of days' supply of the pharmaceutical that was dispensed.</p> <p data-bbox="303 417 1202 658">CAPER data revealed a somewhat frequent use by providers of the E&M code 99499 "Unlisted evaluation and management service" as the primary CPT code listed. Frequent use of this CPT code in the absence of more specific codes could reduce the likelihood of the affected patient case's being otherwise included in the denominator for this measure. While the use of administrative data to implement this measure was highly feasible, it lacked the opportunity one would have from a medical record review to capture data about when an initiated medication trial may have been terminated early and justifiable reasons why this may have occurred. Using both administrative and medical record data sources can provide more complete data but decreases feasibility due to the effort related to medical record review.</p>

* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) is included in this study due to the common use of prescribing clinical psychologists in MTFs.

Table A.5
PTSD-T6: Follow-Up of New Prescription for SSRI/SNRI

Measure Summary		
Measure Statement	Percentage of PTSD patients newly prescribed an SSRI/SNRI with follow-up visit within 30 days	
Numerator	PTSD patients who have a follow-up visit within 30 days of the new prescription for a SSRI/SNRI	
Denominator	Patients with PTSD with a new prescription for a SSRI/SNRI	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Follow-up visit	An outpatient, PTSD-related E&M visit within 30 days following the new prescription for the SSRI/SNRI	CAPER, TED-NI
Outpatient evaluation and management (E&M) visit	See Outpatient Evaluation and Management Visit in Key Definitions. The E&M visit is used to approximate medication management visits, although this definition is likely to overestimate the actual number of medication related visits.	CAPER, TED-NI
Denominator Specifications		Data Source
Patients with PTSD	See Diagnostic Cohort—PTSD in Key Definitions. (See measure application algorithm below.)	CAPER, TED-NI, SIDR, TED-I
New prescription	Prescription for SSRI/SNRI in the 30 days prior or 14 days after the first PTSD encounter during the measurement period with no prescription for an SSRI/SNRI in the prior 90 days	PDTS
SSRI/SNRI	Selective serotonin reuptake inhibitors (SSRIs): Citalopram (Celexa) Escitalopram (Lexapro) Fluoxetine (Prozac, Prozac Weekly, Sarafem, Selfemra) Fluoxetine-olanzapine (Symbyax) Fluvoxamine (Luvox, Luvox CR) Paroxetine (Paxil, Paxil CR, Pexeva) Sertraline (Zoloft)	PDTS: Product Name (PRODNAME)
	Serotonin and norepinephrine reuptake inhibitors (SNRIs): Desvenlafaxine (Khedezla, Pristiq) Duloxetine (Cymbalta) Levomilnacipran (Fetzima) Milnacipran (Savella) Venlafaxine (Effexor, Effexor XR)	

Table A.5—Continued

Measure application algorithm	<p>The following algorithm is based on the implementation of NQF measure #0105 Antidepressant Medication Management on which the prior measure PTSD-T5 is based. It has been adapted to reflect the data sources used for this study.</p> <p>Step 1: Identify all members who met at least one of the following criteria during the Intake Period (measurement year).</p> <ul style="list-style-type: none"> • At least one primary diagnosis of PTSD in an outpatient, ED, intensive outpatient or partial hospitalization setting, OR • At least two visits in an outpatient, ED, intensive outpatient or partial hospitalization setting on different dates of service with any diagnosis of PTSD, OR • At least one inpatient (acute or nonacute) claim/encounter with any diagnosis of PTSD <p>Code to Identify PTSD ICD-9-CM Diagnosis: 309.81</p> <p>CPT Codes to Identify Outpatient Visit Type</p> <ul style="list-style-type: none"> • Emergency Department: 99281–99285 • Outpatient psychotherapy: 90804–90815 • Education for self-management: 98960–98962 • Group education: 99078 • Outpatient E&M: 99201–99205, 99211–99215, 99217–99220 • Outpatient consultation: 99241–99245 • Home visit: 99341–99345, 99347–99350, 99510 • Preventive medicine: 99384–99387, 99394–99397, 99401–99404, 99411, 99412 <p>HCPCS:</p> <ul style="list-style-type: none"> • Social work, activity therapy, self-care education, group therapy: G0155, G0176, G0177, G0409–G0411 • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034–H0037, H0039, H0040, H2000, H2001, H2010–H2020 • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 <p>CPT codes and place of service (POS)</p> <ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 90832–90834, 90836–90840 • Inpatient/partial hospitalization psychotherapy: 90816–90819, 90821–90824, 90826–90829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: 90863* • Electroconvulsive therapy (ECT): 90870, • Biofeedback: 90875, 90876 • Inpatient E&M: 99221–99223 • Subsequent hospital care: 99231–99233, 99238, 99239 • Inpatient consultation: 99251–99255 <p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit. See Appendix C for rules used to identify outpatient encounters from CAPER and TED-NI.</p> <p>Step 2: Determine the Index Episode Start Date (IESD). For each member identified in step 1, identify the date of the earliest encounter during the Intake Period with any diagnosis of PTSD. If the member had more than one encounter during the Intake Period, include only the first encounter.</p> <p>Step 3: Identify the Index Prescription Start Date (IPSD). The IPSD is the date of the earliest dispensing event for an SSRI/SNRI medication during the period of 30 days prior to the IESD (inclusive) through 14 days after the IESD (inclusive). Exclude members who did not fill a prescription for an SSRI/SNRI medication during this period.</p> <p>Step 4: Test for Negative Medication History. Exclude members who filled a prescription for an SSRI/SNRI in the 90 days (3 months) prior to the IPSD.</p> <p>Step 5: Calculate continuous enrollment. Members must be continuously enrolled (did not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files) for 90 days (3 months) prior to the IESD to 80 days after the IESD.</p>	CAPER, TED-NI, SIDR, TED-I
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Table A.5—Continued

Denominator Specifications

Exclusions	Patient with an acute or nonacute hospital admission during the 30-day follow-up period either for a mental health or non-mental health reason. These patients are excluded from the measure because inpatient admission may prevent an outpatient follow-up visit from occurring.	SIDR, TED-I
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Measure Background

Measure source New measure

Rationale for measure inclusion	<p>Guideline Support</p> <p>This is a newly developed measure that will require validation. We believe the 30-day follow-up window represents an adequate trial to allow the provider to make a determination of initial response and evaluate side effects experienced by the patient (Department of Veterans Affairs and Department of Defense, 2010). The follow-up visit provides an opportunity to titrate dosage, substitute a different SSRI or SNRI, or discontinue pharmacological treatment. Although the RAND team selected a 30-day window for the first follow-up, we note that this time period was selected based on clinical judgment. Research has not yet been conducted to determine the precise threshold for the time period. Validation research will be necessary in order to determine the time frame that jointly maximizes the time available for the provider and patient to schedule a visit, while ensuring that the time frame is no longer than the period after which treatment engagement suffers.</p> <p>Finally, we draw attention to the different time frames specified for this measure and the T9 measures (PTSD and depression). This measure checks for two E&M visits (prescribing visit and follow-up E&M visit) within 30 days while the T9 measure allows eight weeks in which to complete the second E&M visit. The reason for this difference is that the T9 measure assesses the minimally appropriate level of care for mental health patients, while this measure sets a higher threshold for ideal care.</p>
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Research Evidence

Although there is clear evidence that antidepressant medications are associated with symptom reduction (Fournier et al., 2010), one-third of patients will discontinue treatment within a month of receiving the prescription (Simon, 2002). For this reason, it is important for providers to maintain contact with patients in order to assess side effects and barriers to medication adherence and treatment engagement. Providers who follow up with patients have the opportunity to work collaboratively with them to problem-solve strategies to maintain medication adherence and treatment engagement.

Feasibility	This measure was implemented using administrative claims data and pharmacy data, making it very feasible to operationalize. An appropriate follow-up visit was defined as any one of a series of selected E&M codes (see Key Definitions). CAPER data revealed somewhat frequent provider use of the E&M code 99499 “Unlisted evaluation and management service” which is not included in the E&M visit definition used for this study. Providers with sole use of this CPT code make it difficult to know the actual complexity of their patient encounters. Use of this code in the absence of other more specific codes could result in an increased likelihood of relevant patient cases failing this quality measure.
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* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) was included in this study due to the common use of prescribing clinical psychologists in MTFs.

Table A.6
PTSD-T8: Psychotherapy for New Treatment Episode

Measure Summary		
Measure statement	Percentage of PTSD patients in a new treatment episode who received any psychotherapy within four months	
Numerator	Patients in the denominator who receive any psychotherapy within four months following the start of a new treatment episode	
Denominator	Patients in a new treatment episode of PTSD	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Psychotherapy	See Outpatient Psychotherapy in Key Definitions	CAPER, TED-NI
Any psychotherapy	One or more psychotherapy encounters in the four months following the start of the new treatment episode. If the initial visit triggering the new treatment episode is a psychotherapy-related encounter, there must be at least one additional psychotherapy encounter to pass.	CAPER, TED-NI
Denominator Specifications		Data Source
Patients with PTSD	See Diagnostic Cohort—PTSD in Key Definitions	CAPER, TED-NI, SIDR, TED-I
New treatment episode	See New Treatment Episode—PTSD in Key Definitions	CAPER, TED-NI, SIDR, TED-I
Exclusions	None	
Measure Background		
Measure source	Adapted from: Sorbero, M., Mannle, T.E., Smith, B., Watkins, K.E., Woodroffe, A., and Paddock, S.M., Program Evaluation of VHA Mental Health Services: Administrative Data Report (Contract# GS 10 F-0261k), Alexandria, VA: Altarum Institute and RAND—University of Pittsburgh Health Institute, 2010.	

Table A.6—Continued

Measure Background	
Rationale for measure inclusion	<p>Source/Adaptation This measure was modified from a measure used in the VA Mental Health Program Evaluation (Farmer et al., 2010; Sorbero et al., 2010; Watkins et al., 2011). Modifications include a change in the definition of a break in care from 5 months to 6 months to match the time frame more generally used. The requirement for a 6-month break in PTSD-related medication (antidepressant, antipsychotic, and prazosin) was maintained from the VA evaluation. However, in this study, NTEs were limited to those diagnosed in the outpatient setting.</p> <p>Guideline Support This measure is consistent with the recommendations of the VA/DoD Clinical Practice Guidelines for Management of Major Depressive Disorder (2009) and Post-Traumatic Stress (2010), which recommend psychotherapy as a first-line treatment option. The CPG authors identify cognitive behavioral therapy (CBT), interpersonal psychotherapy (IPT), and problem solving therapy as the three evidence-based psychotherapies for MDD with the strongest, most extensive evidence base. For PTSD, the CPG recommends trauma-focused psychotherapy (which includes components of exposure and/or cognitive restructuring) or stress inoculation training. The strength of the evidence for all recommendations was graded an “A” indicating that there is good evidence to support the claim that the intervention improved outcomes. The American Psychiatric Association practice guidelines recommend that CBT be considered a first-line treatment option for both MDD and PTSD (American Psychiatric Association, 2004; Glenberg et al., 2010). Other appropriate treatments for PTSD included trauma-focused cognitive behavioral therapy (TF-CBT) variants (e.g., EMDR, imagery rehearsal) and stress inoculation. An Agency for Healthcare Research and Quality report on treatment for PTSD confirms these conclusions (Jonas et al., 2013).</p> <p>Research Evidence Although there is research evidence supporting the claim that psychotherapy is effective as the primary or adjunct treatment for PTSD, this indicator does not capture the type of psychotherapy offered (i.e., evidence-based or not). Further, the threshold for success on the measure is met after a single psychotherapy session, which is unlikely to be adequate to achieve a response. For this reason this indicator should be used descriptively only.</p>
Feasibility	<p>The numerator and denominator for this measure were calculated with administrative claims data, making it very feasible to implement. Because of this study’s focus on outpatient care, the definition of an NTE was limited to a new primary diagnosis at an outpatient visit. Therefore, patients whose NTE was initiated with a hospitalization were not included in the denominator for this measure.</p>

Table A.7
PTSD-T9: Receipt of Care in First Eight Weeks

Measure Summary	
Measure statement	Percentage of PTSD patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks
Numerator	Patients in the denominator who receive four psychotherapy visits or two evaluation and management visits within eight weeks of a new treatment episode
Denominator	Patients in a new treatment episode of PTSD
Measure type	Process
Care setting	Outpatient
Numerator Specifications	
Psychotherapy	See Outpatient Psychotherapy in Key Definitions. Measure assesses whether at least four psychotherapy visits occurred during the eight weeks following the NTE visit
Outpatient evaluation and management (E&M) visit	See Outpatient Evaluation and Management Visit in Key Definitions. Measure assesses whether at least two E&M visits occurred during the eight weeks following the NTE visit. The E&M visit is used to approximate medication management visits, although this definition is likely to overestimate the actual number of medication related visits.
	CAPER, TED-NI
	CAPER, TED-NI
Denominator Specifications	
Patients with PTSD	See Diagnostic Cohort—PTSD in Key Definitions
New treatment episode	See New Treatment Episode—PTSD in Key Definitions
Exclusions	Patient with an acute or nonacute hospital admission during the eight-week follow-up period either for a mental health or non-mental health reason. These patients are excluded from the measure because inpatient admission may prevent an outpatient follow-up visit from occurring.
	CAPER, TED-NI, SIDR, TED-I
	CAPER, TED-NI, SIDR, TED-I
	SIDR, TED-I
Measure Background	
Measure source	New measure

Table A.7—Continued

Measure Background	
Rationale for measure inclusion	<p>Source/Adaptation This measure was developed for this project via a RAND consensus process involving five clinician researchers and quality measurement experts. It is designed to assess a minimally appropriate level of care for mental health patients entering a new treatment episode.</p> <p>Guideline Support Research Evidence The VA/DoD Clinical Practice Guidelines for MDD and PTSD do not state explicitly the minimum or optimal number of visits during the initial treatment period (Department of Veterans Affairs and Department of Defense, 2009; Department of Veterans Affairs and Department of Defense, 2009). However, the measure is consistent with a key element of the MDD guideline which states that “patients require frequent visits early in treatment to assess response to intervention, suicidal ideation, side effects, and psychosocial support systems (Department of Veterans Affairs and Department of Defense, 2009). The number of psychotherapy visits (4) matches the shortest evidence-based intervention recommended in the PTSD clinical practice guideline (brief CBT for acute stress disorder (Department of Veterans Affairs and Department of Defense, 2010). The definition is also consistent with the technical specifications used in the VA Mental Health Program Evaluation in which any eight-week period with fewer than four psychotherapy visits was defined as a period in which the patient was not receiving psychotherapy (Horvitz-Lennon et al., 2009).</p> <p>Two medication management visits within eight weeks was selected as minimally appropriate follow-up because, in addition to the first visit to prescribe the new medication, a second visit would be needed to meet VA/DoD practice guidelines. These guidelines recommend that the dose be titrated at four to six weeks if symptoms are nonresponsive, and that the prescription should be changed at eight to 12 weeks if the patient’s symptoms remain nonresponsive (Department of Veterans Affairs and Department of Defense, 2009). If the four-to-six-week visit occurs on schedule with guidelines, the care would meet the threshold for this measure. Note that this measure provides a two-week buffer time period beyond CPG recommendations.</p> <p>We draw attention to the different time frames specified for this measure and the T6 measures. For medication management, this measure allows eight weeks in which to complete the second visit, while the T6 measures assess whether the second visit occurred within 30 days. The reason for this difference is this measure assesses the minimally appropriate level of care for mental health patients, while T6 sets a higher threshold for ideal care.</p>
Feasibility	<p>The numerator and denominator for this measure were calculated with administrative claims data, making it very feasible to implement. CAPER data revealed somewhat frequent provider use of the E&M code 99499 “Unlisted evaluation and management service,” which is not included in the evaluation and management definition used for this study. Frequent use of this CPT code in the absence of more specific codes may result in an increased likelihood of failing this quality measure where evaluation and management occurred but at a visit that was not more specifically coded to the level of its complexity. Because of this study’s focus on outpatient care, the definition of an NTE was limited to a new primary diagnosis at an outpatient visit. Therefore, patients whose NTE was initiated with a hospitalization were not included in the denominator for this measure.</p>

Table A.8
PTSD-T15: Follow-Up After Hospitalization for Mental Illness

Measure Summary	
Measure statement	Percentage of psychiatric inpatient hospital discharges of patients with PTSD with follow-up: T15a: Within seven days of discharge T15b: Within 30 days of discharge
Numerator	Inpatient discharges in the denominator where the inpatient discharge was followed with an outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner: T15a: Within seven days of discharge T15b: Within 30 days of discharge
Denominator	Patients with PTSD discharged from an acute inpatient setting with primary mental health diagnosis
Measure type	Process
Care setting	Outpatient

Table A.8—Continued

Numerator Specifications	Data Source
<p>Follow-up</p> <p>Rate 1: An outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner or transitional care management service within seven days after discharge. Include outpatient visits, intensive outpatient encounters or partial hospitalizations that occur on the date of discharge.</p> <p>Rate 2: An outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner or transitional care management service within 30 days after discharge. Include outpatient visits, intensive outpatient encounters, or partial hospitalizations that occur on the date of discharge.</p> <p>CPT Codes to Identify Outpatient Visit Type</p> <ul style="list-style-type: none"> • Outpatient psychotherapy: 90804–90815 • Education for self-management: 98960–98962 • Group education: 99078 • Outpatient E&M: 99201–99205, 99211–99215, 99217–99220 • Outpatient consultation: 99241–99245 • Home visit: 99341–99345, 99347–99350, 99510 • Preventive medicine: 99383–99387, 99394–99397, 99401–99404, 99411, 99412 <p>HCPCS:</p> <ul style="list-style-type: none"> • Social work, activity therapy, self-care education, group therapy: G0155, G0176, G0177, G0409–G0411, • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034–H0037, H0039, H0040, H2000, H2001, H2010–H2020, • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 <p>CPT codes and place of service (POS)</p> <ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 90832–90834, 90836–90840 • Inpatient/partial hospitalization psychotherapy: 90816–90819, 90821–90824, 90826–90829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: +90863* • Electroconvulsive therapy (ECT): 90870 • Biofeedback: 90875, 90876 • Inpatient E&M: 99221–99223 • Subsequent hospital care: 99231–99233, 99238, 99239 • Inpatient consultation: 99251–99255 <p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit other than emergency department. See Appendix B for rules used to identify outpatient encounters from CAPER and TED-NI.</p> <p>Transitional care management (TCM) services: TCM where the date of service on the claim is 29 days after the date the patient was discharged with a principal diagnosis of mental illness.</p> <ul style="list-style-type: none"> • Applies to seven- and 30-day rates: 99496, face-to-face contact within seven days • Applies to 30-day rate: 99495, face-to-face contact within 14 days <p>Note: Transitional care management is a 30-day period that begins on the date of discharge and continues for the next 29 days. The date of service on the claim is 29 days after discharge and not the date of the face-to-face visit.</p>	<p>CAPER, TED-NI, SIDR, TED-I</p>

Table A.8—Continued

Numerator Specifications		Data Source
Mental health practitioner	CAPER: Psychiatrist: 070, 071, 073, 076 Psychologist/Psychoanalyst: 072, 702 Psychiatric Nurse Practitioner: 611 Clinical Social Worker: 703, 714	CAPER: Provider Specialty (PROVSPEC1)
	TED-NI: Psychiatrist: 26 Psychologist: 62 Clinical Psychiatric Nurse Specialist: 91 Clinical Social Worker: 85 Certified Marriage and Family Therapist: 94	TED-NI: Provider Specialty (PROVSPEC)
Denominator Specifications		Data Source
Patients with PTSD	See Diagnostic Cohort—PTSD in Key Definitions	CAPER, TED-NI, SIDR, TED-I
Primary mental health illness	Inpatient primary discharge diagnosis as defined by ICD-9-CM diagnosis codes: 295.xx–299.xx, 300.3, 300.4, 301.xx, 308.x, 309.xx, 311–314.xx. See Appendix B for rules used to identify acute hospital admissions from SIDR and TED-I.	SIDR, TED-I
Inpatient discharge	Discharge from an acute inpatient setting during the first 11 months of the measurement year. Unit of measurement is admissions rather than members. Include all discharges for members who have more than one discharge in the first 11 months of the measurement year. If the discharge is followed by readmission or direct transfer to an acute facility for a primary mental health diagnosis (290.xx, 293.xx–302.xx, 306.xx–316) and within the 30-day period, count only the readmission discharge or the discharge from the facility to which the member was transferred. Although re-hospitalization might not be for a selected mental health disorder, it is probably for a related condition.	SIDR, TED-I
Exclusions	<i>Late in the measurement year:</i> Both the initial discharge and readmission/direct transfer discharge if the readmission/direct transfer discharge occurred in month 12 of the measurement year. <i>Nonacute facility, mental health:</i> Discharges followed by readmission or direct transfer to a nonacute facility for any primary mental health diagnosis (290.xx, 293.xx–302.xx, 306.xx–316) within the 30-day follow-up period. These discharges are excluded from the measure because readmission or transfer may prevent an outpatient follow-up visit from taking place. <i>Acute or nonacute facility, non-mental health:</i> Discharges in which the patient transferred directly or readmitted within 30 days of discharge to an acute or nonacute facility for a non-mental health primary diagnosis. These discharges are excluded from the measure because readmission or transfer may prevent an outpatient follow-up visit from occurring.	SIDR, TED-I
Nonacute care	See Appendix C for rules used to identify acute and nonacute hospital admissions from SIDR, TED-I, and TED-NI	SIDR, TED-I, TED-NI

Table A.8—Continued

Denominator Specifications	Data Source
<p>TED-I: Rehabilitation: 46, 48, 56, 82 Home health care: 70 Skilled nursing facility: 76 Residential/extended care facility: 72, 73 Hospice: 78, 79 Substance use disorders rehabilitation facility: 82 Ambulatory surgery: 75, 92</p>	<p>TED-I: Type of Institution (INSTTYPE)</p>
<p>TED-NI: Skilled nursing facility: 31 Nursing facility: 32 Hospice: 34 Intermediate care facility: 54 Residential substance abuse treatment facility: 55 Psychiatric residential treatment center: 56 Comprehensive inpatient rehabilitation facility: 61</p>	<p>TED-NI: Place of Service (PLACE)</p>
<p>HCPCS: Behavioral health, residential: H0017, H0018, H0019, T2048</p>	<p>TED-NI CPT codes</p>
<p>Transfer</p>	<p>SIDR, TED-I</p>
<p>SIDR: <i>Acute (or not specified) transfer:</i> 21 = Transferred to Army MTF 22 = Transferred to Navy MTF 23 = Transferred to Air Force MTF 24 = Discharged to another federal facility 26 = Discharged to civilian acute care (non-AD)</p> <p><i>Nonacute transfer:</i> 27 = Discharged to skilled civilian nursing facility (non-AD) 28 = Discharged to civilian intermediate care facility (non-AD)</p>	<p>SIDR: Disposition Type (DISPTYPE)</p>
<p>TED-I: <i>Acute (or not specified) transfer:</i> 02 = Transferred; 05 = Discharged/transferred to another type of institution 43 = Discharged/transferred to a federal hospital 65 = Discharged/transferred to a psychiatric hospital 66 = Discharged/transferred to a critical access hospital 70 = Discharged/transferred to another type of health care institution not elsewhere defined</p> <p><i>Non-acute transfer:</i> 03 = Discharged/transferred to a skilled nursing facility (SNF) 04 = Discharged/transferred to an intermediate care facility (ICF) 51 = Discharged to hospice-medical facility 61 = Discharged/transferred within this institution to hosp-based Medicare apprvd swing-bed 62 = Discharged/transferred to another rehab facility 63 = Discharged/transferred to a long-term care hospital 64 = Discharged/transferred to a nursing facility</p>	<p>TED-I: Disposition Status (DISPSTAT)</p>

Table A.8—Continued**Measure Background**

Measure source National Quality Forum, NQF #0576 Follow-Up After Hospitalization for Mental Illness, Last Updated: Jan 6, 2014. As of July 30, 2014: <http://www.qualityforum.org/QPS>
National Committee for Quality Assurance, HEDIS 2013. As of April 15, 2013: <http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2013.aspx>

Rationale for measure inclusion**Source/Adaptation**

This is an NQF-endorsed measure developed by the National Committee for Quality Assurance (National Quality Forum, 2013a) and included in the Healthcare Effectiveness Data and Information Set (HEDIS) 2013 (National Committee for Quality Assurance, 2013a). NCQA states in its rationale statement: “as treatment of mentally ill patients continues to shift from inpatient to outpatient settings, coordinating and maintaining continuity of care are important aspects of health care quality. There are several clinical reasons for ensuring adequate and timely follow-up care for patients after discharge from an institution or hospital for mental illness:

- Preventing readmission
- Keeping track of those who will eventually require readmission
- Providing transitional care from inpatient to outpatient setting.”

Guideline Support

The care continuity targeted by this measure is not specifically included in the 2010 VA/DoD Clinical Practice Guideline for PTSD (2010). However, the guideline does make references to the potential use of case management to coordinate and increase continuity of care (Rosen et al., 2006). The 2009 VA/DoD Clinical Practice Guideline for MDD (2009) also recommends the use of a case manager to coordinate communication between primary and mental health care specialists as one component of case management (Bower et al., 2006; Gilbody et al., 2006; Williams et al., 2007). This measure has face validity, and it is the standard of care to provide patients with adequate follow-up after an inpatient psychiatric stay. Furthermore, this indicator is an industry standard measure, as indicated by its inclusion in HEDIS.

Research Evidence

It is important to provide regular follow-up therapy to patients after they have been hospitalized for mental illness. An outpatient visit with a mental health practitioner after discharge is recommended to ensure that the patient’s transition to the home and work environment is supported and that gains made during hospitalization are not lost. It also helps health care providers to detect problems early and provide continuing care.

Missed appointments increase the likelihood of rehospitalization and increase the cost of outpatient care (Mitchell and Selmes, 2007). In terms of clinical characteristics, individuals with a co-occurring serious mental illness and a substance use disorder have high rates of treatment disengagement, as do individuals with higher levels of psychopathology (Kreyenbuhl, Nossel, and Dixon, 2009).

Disengagement from mental health services can be a significant problem that can lead to exacerbation of psychiatric symptoms, repeated hospitalizations, first-episode or recurrent homelessness, violence against others, and suicide (Dixon et al., 2009; Fischer et al., 2008). Communication between inpatient and outpatient clinicians is an intervention associated with improved odds of a successful linkage to postdischarge outpatient care (Boyer et al., 2000).

Table A.8—Continued

Measure Background

Feasibility The numerator and denominator for this measure were calculated with administrative claims data, making it theoretically very feasible to implement. This rate was computed based on administrative data from SIDR and TED-I. However, identifying and summarizing separate inpatient stays from these data proved to be challenging. For example, a disposition status of “still a patient” (interim billing) was followed with a line with a “new” (next day) admission date. An attempt was made to reconcile such cases (this example was assumed to be a continuing stay rather than a new admission given the coded status). Other cases, for example with a status of “discharge” or “return to active duty” with a next-day admission, were assumed to be a new inpatient stay. (See Appendix C for details of the assumptions used to process these data for analysis.) However, this measure focuses on the last readmission discharge in 30 days, if applicable; difficulty distinguishing between a continued stay and an immediate readmission would not have significant effect since the last readmission discharge is the discharge of interest.

* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]), is not included in the 2014 updated definition of the numerator for NQF #0576. However, it has been included in this study due to the common use of prescribing clinical psychologists in MTFs

Table A.9
PTSD-RU1: Psychiatric Inpatient Discharges

Measure Summary	
Measure statement	Number of psychiatric discharges per 1,000 patients with PTSD
Numerator	Number of psychiatric discharges during the measurement period for patients in the denominator
Denominator	Number of patients with PTSD divided by 1,000
Measure type	Resource utilization
Care setting	Outpatient
Numerator Specifications	
Psychiatric discharge	Acute inpatient admission with primary discharge diagnosis code from ICD-9-CM Diagnosis codes 290.xx-319.xx during the measurement period. Unit of measurement is discharges rather than members. See Appendix B for rules used to identify acute hospital admissions from SIDR and TED-I.
Measurement period	Period of time during which care is evaluated. For this study, the measurement period was the 12 months after cohort entry.
Denominator Specifications	
Patients with PTSD	See Diagnostic Cohort - PTSD in Key Definitions
Exclusions	None
Measure Background	
Measure source	Adapted from: Department of Defense, Deployment Health Clinical Center, Post-Deployment Health Guideline Expert Panel (2001). <i>Recommendations for monitoring metrics: DoD/VA Practice Guideline for Post-Deployment Health Evaluation and Management</i> . Retrieved from http://www.pdhealth.mil/guidelines/downloads/view/3/2_recommendations_for_metrics.pdf . And Sorbero, M., Mannle, T.E., Smith, B., Watkins, K.E., Woodroffe, A., and Paddock, S.M., <i>Program Evaluation of VHA Mental Health Services: Administrative Data Report (Contract# GS 10 F-0261k)</i> , Alexandria, Va.: Altarum Institute and RAND–University of Pittsburgh Health Institute, 2010.

Table A.9—Continued

Measure Background	
Rationale for measure inclusion	<p>Source/Adaptation This measure stems from the recommendations of an expert panel that made recommendations for monitoring postdeployment health (Department of Defense, Deployment Health Clinical Center and Panel, 2001) as well as the VA Mental Health Program Evaluation (Sorbero et al., 2010).</p> <p>Guideline Support This indicator is based on recommendations in the 2010 VA/DoD Clinical Practice Guideline. Inpatient psychiatric care is appropriate and recommended when the symptoms of a psychological health (PH) condition are severe or when the patient poses a threat to him or herself or others (Department of Veterans Affairs and Department of Defense, 2009; 2010). However, inpatient care also imposes the most restrictions on patients and is a substantial cost driver of total treatment expenditures (Luppa et al., 2007). For these reasons and others, it is generally recommended that patients receive care in the least restrictive setting appropriate for the severity of their condition. Although it will always be the case that some patients are best served by inpatient care, high-quality outpatient care delivered in a timely fashion should avert some potential hospitalizations.</p> <p>Research Evidence This measure provides the MHS a tracking metric to follow the rate of inpatient hospitalization across time. Although there is no clear benchmark for the appropriate rate of psychiatric hospitalization among patients with PH conditions, by tracking trends over time and in response to improvements in outpatient psychological care, the MHS will be in a position to monitor use and respond to indications of overuse.</p>
Feasibility	<p>The numerator and denominator for this measure were calculated with administrative claims data, making it feasible to implement. This rate was computed based on administrative data from SIDR and TED-I. Identifying and summarizing separate inpatient stays from these data proved to be challenging. For example, a disposition status of “still a patient (interim billing)” was followed with a line with a “new” (next day) admission date. An attempt was made to reconcile such cases (this example was assumed to be a continuing stay rather than a new admission given the coded status). Other cases, for example with a status of “discharge” or “return to active duty” with a next-day admission were assumed to be a new inpatient stay. The default assumption when there was a lack of information that would strongly support interpreting data as a continued stay rather than an inpatient stay and readmission was to assume readmission. (See Appendix C for details of the assumptions used to process these data for analysis.)</p>

Technical Specifications for Administrative Data Quality Measures for Depression

This appendix provides technical specifications for the implementation of the administrative data–based depression quality measures described in the body of this report. It is divided into the following sections:

1. **Diagnostic cohort:** This section describes the eligibility criteria for inclusion used to place service members in the depression cohort. This cohort forms the population whose care is evaluated during the 12 months after entry into the diagnostic cohort.
2. **Key definitions:** This section describes the technical specifications for key definitions that are frequently referenced throughout the remainder of this document. These definitions include qualifying notes where applicable.
3. **Administrative data quality measures for depression:** These sections describe the technical specifications for each depression quality measure, including the following:
 - a. **Measure summary**—measure statement, numerator, denominator, measure type (e.g., process, outcome), and care setting (e.g., outpatient).
 - b. **Numerator specifications**—definitions of variables used in the numerator and relevant data sources.
 - c. **Denominator specifications**—definitions of variables used in the denominator, relevant data sources, and denominator exclusions, if applicable.
 - d. **Measure background**—source of the measure, any adaptation to the measure that was made by the project team in implementation, clinical practice guideline support for the measure, existing research evidence behind the measure, and feasibility of measure implementation.

The study population includes service members only and excludes their spouses and other dependents, and retirees and their dependents. The rules applied for ensuring that patients in the cohort were engaged in care with the MHS match those applied in the VA evaluation. The application of these rules defining engagement seeks to demonstrate a minimum level of interaction by the member with the MHS as a care provider. The cohort diagnostic-code requirement of only one code-specific encounter

was chosen to create in the cohort the broadest population of patients with depression. The most inclusive denominators in related NQF measures require only one diagnosis-related encounter as well. Cohort-inclusion in the VA evaluation was based on the study diagnosis with the most encounters (out of five possible study diagnoses) during the measurement period and was limited to one study diagnosis of interest, unlike this study where a patient may have been included in both PTSD and depression cohorts.

The diagnostic code list for inclusion in the depression cohort used in the VA evaluation was limited to codes for MDD. This study includes a broader range of diagnostic codes for depression (major depressive disorder or depression/dysthymia) as the basis for cohort inclusion. These diagnostic codes reflect the broadest inclusion criteria for the quality measure denominators utilized in this study (including relevant NQF and VA evaluation measure implementations). For some quality measures where the denominator is more narrowly defined than is the diagnostic cohort, those measures were applied to a subset of the larger depression cohort. Exclusions were applied to the denominators in both cohorts to make results as comparable as possible to NQF and VA evaluation applications. Where applicable, reference has been made in the specifications to how the implementations of these measures may have varied across applications.

The administrative data sources used for this study are shown in Table B.1.

While four of these data sets are distinguished as outpatient/inpatient and provider/facility, they may all apply to the same date(s) of service. The interpretation of

Table B.1
Administrative Data Content of Data Sources for Direct Care and Purchased Care

Content	Data Source
Outpatient services delivered within MTFs (direct care)	Comprehensive Ambulatory Professional Encounter Record (CAPER)
Inpatient services delivered within MTFs (direct care)	Standard Inpatient Data Record (SIDR)
Provider services delivered outside of MTFs (purchased care)	TRICARE Encounter Data—Non-Institutional (TED-NI)
Facility services delivered outside of MTFs (purchased care)	TRICARE Encounter Data—Institutional (TED-I)
TRICARE eligibility and enrollment	VM6 Beneficiary Level
TRICARE eligibility/active-duty status	Active Duty Master File
Dispensed medication	Pharmacy Data Transaction Services (PDTs)
Service characteristics	Defense Manpower Data Center (DMDC)
Deployment history	Contingency Tracking System—Deployments

crossover of data lines of service within these data sets was challenging. Also, variables distinguishing characteristics of care provided (e.g., place of service, provider specialty) vary greatly among the data sets both in content and level of detail. These inconsistencies presented challenges to classifying and describing care across these data sets. Specific rules were developed to categorize data in as standardized a manner as possible across all data sets. The rules dealt with issues such as identifying providers of similar specialty, handling of same-day encounters with individual providers, and classifying care by place of service. See Appendix C for a summary of the rules applied and the rationale behind them.

The PDTS was used to evaluate all pharmacologic care provided during the measurement period. The PDTS database used included a scrambled SSN of the plan sponsor. It was assumed that the vast majority of the sponsors were the active-component members, but relationship to the sponsor was not an included variable in the data set. To address this problem, cross-checks between PDTS and VM6 Beneficiary files were made of member age and gender. Cases that were not matches were deleted from the PDTS database.

Diagnostic Cohort

The following describe the criteria applied for member inclusion into the depression diagnostic cohort for this study.

Eligibility for Cohort Inclusion

Active-component service members were eligible for inclusion in the depression cohort. These individuals were most likely enrolled in TRICARE Prime, Standard, or Extra. Active-component spouses and dependents and all retirees and dependents were ineligible. Eligibility was calculated based on all care received (i.e., direct care and/or purchased care). Members who were completely missing from the Active Duty Master File (current through September 2012) were dropped from inclusion.¹

Depression Cohort

Inclusion in the depression cohort required a condition-related diagnosis during the measurement period, and a minimal level of engagement during that time with TRICARE-provided care for any health reason.

Condition-related diagnosis. During the six-month period from January 1, 2012 through June 30, 2012, active-component members were identified who had a depres-

¹ Active-duty service members are eligible to receive care at MTFs or through the TRICARE network through TRICARE Prime. A check of both the eligibility and enrollment files occasionally showed unexpected gaps in coverage, so we used the Defense Manpower Data Center's Active Duty Master File to verify that the service member was still serving on active duty.

sion diagnosis occurring in at least one TRICARE-provided inpatient episode or one TRICARE-provided outpatient encounter. The first diagnosis of depression during the six-month period was identified using the ICD-9-CM codes (primary or secondary) listed in Table B.2 associated with any TRICARE encounter. The date of the first depression diagnosis defined the start date of the 12-month measurement period during which care for depression was observed. The codes for inclusion in the depression cohort include more than only those for MDD. We chose this broader defini-

Table B.2
Qualifying ICD-9-CM Codes for Depression Cohort Inclusion

ICD-9-CM Code	Description
296.20	Major depressive disorder, single episode, unspecified
296.21	Major depressive disorder, single episode, mild
296.22	Major depressive disorder, single episode, moderate
296.23	Major depressive disorder, single episode, severe, without mention of psychotic behavior
296.24	Major depressive disorder, single episode, severe, specified as with psychotic behavior
296.25	Major depressive disorder, single episode, in partial or unspecified remission
296.26	Major depressive disorder, single episode, in full remission
296.30	Major depressive disorder, recurrent episode, unspecified
296.31	Major depressive disorder, recurrent episode, mild
296.32	Major depressive disorder, recurrent episode, moderate
296.33	Major depressive disorder, recurrent episode, severe, without mention of psychotic behavior
296.34	Major depressive disorder, recurrent episode, severe, specified as with psychotic behavior
296.35	Major depressive disorder, recurrent episode, in partial or unspecified remission
296.36	Major depressive disorder, recurrent episode, in full remission
293.83	Mood disorder in conditions classified elsewhere: transient organic psychotic conditions, depressive type
296.90	Unspecified episodic mood disorder (affective psychosis, melancholia, mood disorder not otherwise specified)
296.99	Other specified episodic mood disorder (mood swings: brief compensatory, rebound)
298.0	Depressive type psychosis
300.4	Dysthymic disorder
309.1	Prolonged depressive reaction
311	Depressive disorder, not elsewhere classified

tion of depression to include relevant NQF-endorsed depression measure denominator codes, which often included dysthymia and other depressive disorders.² Many of these measures will be implemented in Phase II of this study, which will include medical record review. Denominator definitions for these measures varied across measures, and the diagnosis codes defining those denominators were included in Table B.2. We also chose a broader definition due to the variability of how specific diagnostic codes may be used by providers when coding the diagnosis.

One depression encounter was required for cohort entry. We chose to require one encounter to be more inclusive but acknowledge that we may be including patients whose depression diagnoses were not confirmed. On the other hand, one encounter meant that we would also not exclude those patients with a valid diagnosis who might not have received indicated follow-up care.

Engaged with and eligible for MHS care. Patients selected for the cohort also had to have at least one TRICARE-provided inpatient episode or two outpatient encounters *for any reason* during the 12-month measurement period starting with the first qualifying diagnosis of depression. They also, and during that same 12-month measurement period, did not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files.

Exclusions

Measure denominator exclusions, if any, were made on a measure-by-measure basis (e.g., in hospice treatment, resident of long-term care facility) as indicated for the measure, and these are specified in the measure's technical specifications. In all cases, we strove to follow the technical specifications as indicated by the measure's source. In general, denominator exclusions for inpatient admissions were allowed when the window of time for the recommended outpatient care was short (e.g., 30 days) or the measure assessed a minimum amount of care within a relatively short time (e.g., four psychotherapy visits or two E&M visits within eight weeks). This exclusion was based on the assumption that the admission might have interfered with the ability to access the outpatient care. Patients were excluded from a measure denominator if the time remaining in the study period after requirements for measure eligibility were met was less than the specified time period allowed for the provision of the care being evaluated.

Comorbidity

If an active-component member was included in both the PTSD and depression cohorts, applicable quality measures for both conditions were applied.

² NQF-endorsed depression measures #0104, #0105, #0109, #0110, #0711, #0712, and #1884.

Table B.3
Key Definitions

Variable	Definition	Questions/Notes
New treatment episode: depression	<p>The new treatment episode (NTE) for depression applies to patients in the depression cohort and is defined as:</p> <p>An outpatient visit with a primary diagnosis of depression (Table B.2, but excluding 296.26 and 296.36) AND No outpatient visits in the prior six months for depression (primary or secondary diagnosis, Table B.2, but excluding 296.26 and 296.36) from CAPER and TED-NI AND No treatment with an antidepressant in the prior six months based on the PDTS AND No admission or transfer to an inpatient or residential bed from SIDR or TED-I in the prior six months with a diagnosis (primary or secondary) of depression (Table B.2, but excluding 296.26 and 296.36) and when the depression diagnosis is not primary, a primary psychiatric diagnosis (ICD-9 codes: 290.xx–319.xx). The first visit after the clean period in which depression is the primary diagnosis indicates the start date of the NTE.</p> <p>The inclusion of the required depression-related medication “clean period” prior to the NTE was designed to create a higher degree of certainty that the case identified was a true NTE. While some depression medications are used for unrelated reasons, it was not possible to identify which cases with medication treatment in the prior six months represented treatment for depression and which did not. The care of NTEs evaluated in this report is limited to those diagnosed in an outpatient setting since the selected quality measures focus on outpatient care. Patients whose NTEs were initiated by an inpatient stay are not included in the denominators of measures focusing on NTE care.</p> <p>If a patient had more than one depression NTE during the measurement period, performance of care was evaluated for only the first NTE.</p>	<p>“Outpatient visit” does not include telephone/email encounters</p>
Anti-depressant treatment	<p>Treatment with (dispensing of) a drug listed in the PDTS of Therapeutic Class THERCLSS 281604 (antidepressants) OR Product Name PRODDNAME Savella</p>	<p>Product Name is used for drugs not consistently identified via the Therapeutic Class</p>

Table B.3—Continued

Variable	Definition	Questions/Notes
Outpatient psychotherapy	<p>Any study diagnosis–related (primary or secondary diagnosis for depression from Table B.2) outpatient clinic encounters from CAPER or TED-I for which the following CPT codes are present:</p> <p>Pre-2013:</p> <ul style="list-style-type: none"> • 90804, 90805, 90806, 90807, 90808, 90809 Office or other outpatient facility, insight oriented, behavior modifying and/or supportive psychotherapy: Face-to-face with patient, with or without Evaluation and Management (E&M) services, 20–80 minutes duration • 90810, 90811, 90812, 90813, 90814, 90815 Office or other outpatient facility, interactive psychotherapy: Using play equipment, physical devices, language interpreter, or other mechanisms of nonverbal communication, with or without E&M services, 20–80 minutes duration • 90816, 90817, 90818, 90819, 90821, 90822 Inpatient hospital, partial hospital or residential treatment facility: Face-to-face with patient, with or without E&M services, 20–80 minutes duration • 90823, 90824, 90826, 90827, 90828, 90829 Inpatient hospital, partial hospital or residential treatment facility, interactive psychotherapy: Using play equipment, physical devices, language interpreter, or other mechanisms of nonverbal communication, with or without E&M services, 20–80 minutes duration • 90845 Psychoanalysis • 90853 Group psychotherapy (other than of a multiple-family group) • 90857 Interactive group psychotherapy <p>2013 forward:</p> <ul style="list-style-type: none"> • +90785, 90832, +90833, 90834, +90836, 90837, +90838 Psychotherapy, with patient and/or family member: With or without E&M services, 16–53+ minutes duration. • 90839, +90840 Psychotherapy for crisis: First 60 minutes with additional 30-minute add-on code (+90840) • 90845 Psychoanalysis 	<p>CPT codes for psychiatric services changed significantly in 2013.</p> <p>Inpatient codes included for partial hospitalization setting</p> <p>“+” = add-on code. In 2013, interactive complexity is an add-on code (+90785), and codes are no longer site-specific.</p>

Table B.3—Continued

Variable	Definition	Questions/Notes
	<ul style="list-style-type: none"> 90853 Group psychotherapy (other than of a multiple family group) <p>Psychotherapy sessions of less than 30 minutes duration are included in this definition. While sessions of this duration were not very frequently utilized, these sessions may extend to up to 37 minutes in the 2013 coding rules and, therefore, may be significant in terms of a therapeutic treatment session.</p>	
Outpatient evaluation and management (E&M) visit	<p>Diagnosis-related (primary or secondary diagnosis from Table B.2 for depression) E&M visit from CAPER or TED-NI. E&M visit codes are used by qualified health care professionals who can prescribe medication. The E&M visit is used to approximate and include a medication management visit; although E&M visits are likely to overestimate actual medication management visits. An E&M visit is defined as any diagnosis-related encounter for which one of the following CPT codes is present:</p> <ul style="list-style-type: none"> 90805, 90807, 90809, 90811, 90813, 90815, 90817, 90819, 90822, 90824, 90827, 90829 Office or other outpatient or inpatient facility: Individual psychotherapy with medical evaluation and management services, duration 20–80 minutes 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215 Office or other outpatient services: Evaluation and management services 99241, 99242, 99243, 99244, 99245 Office or other outpatient consultations 90862 Pharmacological management, including prescription use, and review of medication with no more than minimal medical psychotherapy +90863 Pharmacological management, including prescription and review of medication, when performed with psychotherapy services (for those providers who cannot report E&M codes). 	<p>Inpatient codes included for partial hospitalization setting</p> <p>Code 90862 discontinued in 2013</p> <p>New code in 2013. Not for use by physicians or other qualified health care professionals</p>
Inpatient stays	<p>The primary sources of administrative data for inpatient stays were SIDR (direct care) and TED-I (purchased facility services). See Appendix C for the rules used to identify inpatient care (acute and nonacute) from these data.</p>	

Table B.3—Continued

Variable	Definition	Questions/Notes
Outpatient visits	The primary sources of administrative data for outpatient visits were CAPER (direct care) and TED-NI (purchased provider services). See Appendix C for the rules used to identify outpatient care from these data.	

**Table B.4
Depression-T5: Duration of Antidepressant Treatment**

Measure Summary

Measure statement	Percentage of depression patients with a newly prescribed antidepressant medication for: T5a: 12 weeks T5b: Six months
Numerator	T5a: Effective Acute Phase Treatment: At least 84 days (12 weeks) of continuous treatment with antidepressant medication during the 114-day period following the initial prescription. T5b: Effective Continuation Phase Treatment: At least 180 days (six months) of continuous treatment with antidepressant medication during the 231-day period following the initial prescription.

Denominator Patients with depression with a new prescription for an antidepressant

Measure type	Process
Care setting	Outpatient

Numerator Specifications	Data Source
<p>Effective acute phase treatment At least 84 days (12 weeks) of dispensed antidepressant medication during the 114-day period following the initial prescription. Gaps in medication treatment up to a total of 30 days during the 114-day period are allowed.</p> <p>Gaps can include either washout period gaps to change medication or treatment gaps to refill the same medication. Regardless of the number of gaps, there may be no more than 30 gap days. Count any combination of gaps (e.g., two washout gaps of 15 days each, or two washout gaps of 10 days each and one treatment gap of 10 days).</p> <p>“Treatment days” are equal to the sum of all the days’ supply for each script that falls in the treatment period, regardless of overlapping prescriptions or prescriptions for the same or different applicable medications. If a date of dispensing falls at the end of the measurement interval, the days’ supply that falls after the end of the interval is not counted. For example, a prescription of 90 days’ (3 months) supply dispensed on the 60th day will contribute 20 days’ supply to the 80-day interval.</p>	<p>PDTS: Therapeutic Class (THERCLASS), Product Name (PRODNAME), and Days Supply (DAYSUPPLY)</p>

Table B.4—Continued

Numerator Specifications		
Effective continuation phase treatment	<p>At least 180 days (six months) of dispensed antidepressant medication during the 231-day period following the initial prescription. Gaps in medication treatment up to a total of 51 days during the 231-day period are allowed.</p> <p>Gaps can include either washout period gaps to change medication or treatment gaps to refill the same medication. Regardless of the number of gaps, gap days may total no more than 51. Count any combination of gaps (e.g., two washout gaps, each 25 days, or two washout gaps of 10 days each and one treatment gap of 10 days).</p> <p>“Treatment days” are equal to the sum all the days’ supply for each script that falls in the treatment period, regardless of overlapping prescriptions or prescriptions for the same or different applicable medications. If a date of dispensing falls at the end of the measurement interval, the days’ supply that falls after the end of the interval is not counted. For example, a prescription of 90 days’ (3 months) supply dispensed on the 60th day will contribute 20 days’ supply to the 80-day interval.</p>	<p>PDTS: Therapeutic Class (THERCLSS), Product Name (PRODNAME), and Days Supply (DAYSUPPLY)</p>
Denominator Specifications		Data Source
Patients with depression	See Diagnosis Cohort – Depression in Key Definitions. (See measure application algorithm below.)	
New prescription	Prescription for an antidepressant in the 30 days prior to or 14 days after the first depression encounter during the measurement period and no antidepressant treatment in the 90 days prior.	PDTS
Anti-depressant	<p>Miscellaneous antidepressants: bupropion, vilazodone, vortioxetine</p> <p>Monoamine oxidase inhibitors: isocarboxazid, phenelzine, selegiline, tranylcypromine</p> <p>Phenylpiperazine antidepressants: nefazodone, trazodone</p> <p>Psychotherapeutic combinations: amitriptyline-chlordiazepoxide, amitriptyline-perphenazine, fluoxetine-olanzapine</p> <p>SNRI antidepressants : desvenlafaxine, duloxetine, venlafaxine, levomilnacipran, milnacipran</p> <p>SSRI antidepressants: citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline</p> <p>Tetracyclic antidepressants: maprotiline, mirtazapine</p> <p>Tricyclic antidepressants: amitriptyline, amoxapine, clomipramine, desipramine, doxepin, imipramine, nortriptyline, protriptyline, trimipramine</p>	<p>PDTS: Therapeutic Class (THERCLSS), Product Name (PRODNAME), and Days Supply (DAYSUPPLY)</p>

Table B.4—Continued

Selection algorithm	<p>Step 1: Identify all members who met at least one of the following criteria during the Intake Period (measurement year).</p> <ul style="list-style-type: none"> • At least one principal diagnosis of depression in an outpatient, ED, intensive outpatient or partial hospitalization setting, OR • At least two visits in an outpatient, ED, intensive outpatient or partial hospitalization setting on different dates of service with any diagnosis of depression, OR • At least one inpatient (acute or nonacute) claim/encounter with any diagnosis of depression <p>Codes to Identify Depression ICD-9-CM Diagnosis: 296.20–296.25, 296.30–296.35, 298.0, 311</p> <p>CPT Codes to Identify Visit Type</p> <ul style="list-style-type: none"> • Emergency Department: 99281–99285 • Outpatient psychotherapy: 90804–90815 • Education for self-management: 98960–98962 • Group education: 99078 • Outpatient E&M: 99201–99205, 99211–99215, 99217–99220 • Outpatient consultation: 99241–99245 • Home visit: 99341–99345, 99347–99350, 99510 • Preventive medicine: 99384–99387, 99394–99397, 99401–99404, 99411, 99412 <p>HCPCS:</p> <ul style="list-style-type: none"> • Social work, activity therapy, self-care education, group therapy: G0155, G0176, G0177, G0409–G0411 • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034–H0037, H0039, H0040, H2000, H2001, H2010–H2020 • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 <p>CPT codes and place of service (POS)</p> <ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 90832–90834, 90836–90840 • Inpatient/partial hospitalization psychotherapy: 90816–90819, 90821–90824, 90826–90829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: 90863* • Electroconvulsive therapy (ECT): 90870 • Biofeedback: 90875, 90876 • Inpatient E&M: 99221–99223 • Subsequent hospital care: 99231–99233, 99238, 99239 • Inpatient consultation: 99251–99255 <p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit. See Appendix B for rules used to identify outpatient encounters from CAPER and TED-NI.</p> <p>Step 2: Determine the Index Episode Start Date (IESD). For each member identified in step 1, identify the date of the earliest encounter during the Intake Period with any diagnosis of depression. If the member had more than one encounter during the Intake Period, include only the first encounter.</p> <p>Step 3: Identify the Index Prescription Start Date (IPSD). The IPSD is the date of the earliest dispensing event for an antidepressant medication during the period of 30 days prior to the IESD (inclusive) through 14 days after the IESD (inclusive). Exclude members who did not fill a prescription for an antidepressant medication during this period.</p> <p>Step 4: Test for Negative Medication History. Exclude members who filled a prescription for an antidepressant in the 90 days (3 months) prior to the IPSD.</p> <p>Step 5: Calculate continuous enrollment. Members must be continuously enrolled (did not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files) for 90 days (3 months) prior to the IESD to 245 days after the IESD.</p>
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Table B.4—Continued

Exclusions Patient with a prescription filled for an antidepressant in the 90 days prior PDS to the date of the IPSD

Measure Background

Measure source National Quality Forum, NQF #0105—Antidepressant Medication Management. Last Updated: February 28, 2014. As of July 30, 2014: <http://www.qualityforum.org/QPS>

National Committee for Quality Assurance, HEDIS 2013. As of April 15, 2013: <http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2013.aspx>

Rationale for measure inclusion **Source/Adaptation**
This measure is NQF-endorsed and has been part of the HEDIS Quality Measurement set. The measure can be implemented using exclusively administrative data. In an adapted form, it may also be implemented using medical record data to supplement the administrative data for reasons for early medication discontinuation.

Guideline Support

This indicator is consistent with recommendations in the VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder (2009). The guideline strongly recommends antidepressant medications as a first-line treatment option for patients with MDD (see also Fournier et al., 2010; Moncrieff, Wessely and Hardy, 2004). Given limited evidence to recommend one antidepressant over another (Gartlehner et al., 2007), the guideline suggests clinicians choose between medications based on side effect profiles, patient and family history, concurrent medical illness, and other prescribed medications. Recommended classes of antidepressants include selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), bupropion, and mirtazapine (Department of Veterans Affairs and Department of Defense, 2009). For patients who remit, the guidelines recommend that patients continue to take the same dose for 6–12 months to reduce the risk of relapse. The CPG authors rate the strength of the evidence supporting each of these recommendations as an ‘A’, which corresponds to a “strong recommendation that clinicians provided the intervention to eligible patients” and is reserved for recommendations where “good evidence was found that the intervention improves important health outcomes and . . . benefits substantially outweigh harm” (Department of Veterans Affairs and Department of Defense, 2009).

The VA/DoD Clinical Practice Guideline is consistent with the civilian treatment guideline issued by the American Psychiatric Association (Glenberg et al., 2010). The APA also recommends antidepressants as a treatment option for depression, and that for patients who respond to antidepressants, that treatment be continued for 4–9 months to reduce the risk of relapse. Both recommendations are graded by the guideline authors with an ‘I’, which corresponds to recommendations that are supported with “substantial clinical confidence” (Glenberg et al., 2010). Similarly, the Institute for Clinical Systems Improvement guideline recommends antidepressants for patients with depression, indicating that the time to remission can take as long as 3 months, and that the medication be continued for 6–12 months for patients who respond to antidepressants (Trangle et al., 2012).

Research Evidence

The empirical literature supports the claim that an antidepressant trial should be optimized before shifting to a new treatment strategy. For example, in a trial of fluoxetine, even among patients who showed no improvement at week 6, 31–41 percent achieved full remission by 12 weeks (Quitkin et al., 2003). Although antidepressant treatments should be continued for at least 6 months after remission to reduce the risk of relapse (Department of Veterans Affairs and Department of Defense, 2009), half of patients who begin treatment with an antidepressant discontinue the medication within 1–6 months after initiation (Melartin et al., 2005; Simon, 2002). These early discontinuations are associated with an increased risk for relapse and future depressive episodes (Melartin et al., 2005; Simon, 2002).

Table B.4—Continued

Feasibility This measure was implemented as an administrative data measure using PDS as the data source for the numerator. Calculating the numerator from PDS data was quite feasible using the Days Supply variable indicating the number of days’ supply of the pharmaceutical that was dispensed. Antidepressants were primarily identified via the PDS Therapeutic Class, but at least one medication (Savella) was not consistently identified with this variable and so Product Name was also used.

CAPER data revealed somewhat frequent use by providers of the E&M code 99499 “Unlisted evaluation and management service” as the primary code. Frequent use of this CPT code in the absence of more specific codes may reduce the likelihood of a patient’s case being included in the denominator for this measure. While the use of administrative data to implement this measure was highly feasible, it lacked the opportunity one would have from a medical record review to capture data about when an initiated medication trial may have been terminated early and justifiable reasons why this may have occurred. Using both administrative and medical record data sources can provide more complete data, but decrease feasibility due to the effort related to medical record review.

* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) is included in this study due to the common use of prescribing clinical psychologists in MTFs.

**Table B.5
Depression-T6: Follow-Up of New Prescription for Antidepressant**

Measure Summary		
Measure statement	Percentage of depression patients newly prescribed an antidepressant with follow-up visit within 30 days	
Numerator	Depression patients who have a follow-up visit within 30 days of the new prescription for an antidepressant	
Denominator	Patients with depression with a new prescription for an antidepressant	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Follow-up visit	An outpatient, depression-related E&M visit within 30 days following the new prescription for the antidepressant	CAPER, TED-NI
Outpatient evaluation and management (E&M) visit	See Outpatient Evaluation and Management (E&M) Visit in Key Definitions. The E&M visit is used to approximate medication management visits, although this definition is likely to overestimate the actual number of medication-related visits.	CAPER, TED-NI

Table B.5—Continued

Denominator Specifications	Data Source	
Patients with depression	See Diagnostic Cohort – Depression in Key Definitions. (See measure application algorithm below for definition for this measure.)	CAPER, TED-NI, SIDR, TED-I
New prescription	Prescription for an antidepressant in the 30 days prior or 14 days after the first depression encounter during the measurement period with no prescription for an antidepressant in the prior 90 days. (See measure application algorithm below.)	PDTS
Anti-depressant	Miscellaneous antidepressants: bupropion, vilazodone, vortioxetine Monoamine oxidase inhibitors: isocarboxazid, phenelzine, selegiline, tranylcypromine Phenylpiperazine antidepressants: nefazodone, trazodone Psychotherapeutic combinations: amitriptyline-chlordiazepoxide, amitriptyline-perphenazine, fluoxetine-olanzapine SNRI antidepressants : desvenlafaxine, duloxetine, venlafaxine, levomilnacipran, milnacipran SSRI antidepressants: citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline Tetracyclic antidepressants: maprotiline, mirtazapine Tricyclic antidepressants: amitriptyline, amoxapine, clomipramine, desipramine, doxepin, imipramine, nortriptyline, protriptyline, trimipramine	PDTS: Therapeutic Class (THERCLSS), Product Name (PRODNAME)

Table B.5—Continued

Selection algorithm	<p>Step 1: Identify all members who met at least one of the following criteria during the Intake Period (measurement year).</p> <ul style="list-style-type: none"> • At least one principal diagnosis of depression in an outpatient, ED, intensive outpatient or partial hospitalization setting, or • At least two visits in an outpatient, ED, intensive outpatient or partial hospitalization setting on different dates of service with any diagnosis of depression, or • At least one inpatient (acute or nonacute) claim/encounter with any diagnosis of depression <p>Codes to Identify Depression ICD-9-CM Diagnosis: 296.20-296.25, 296.30-296.35, 298.0, 311 CPT Codes to Identify Visit Type</p> <ul style="list-style-type: none"> • Emergency Department: 99281-99285 • Outpatient psychotherapy: 90804-90815 • Education for self-management: 98960-98962 • Group education: 99078 • Outpatient E&M: 99201-99205, 99211-99215, 99217-99220 • Outpatient consultation: 99241-99245 • Home visit: 99341-99345, 99347-99350, 99510 • Preventive medicine: 99384-99387, 99394-99397, 99401-99404, 99411, 99412 <p>HCPCS: Social work, activity therapy, self-care education, group therapy:</p> <ul style="list-style-type: none"> • G0155, G0176, G0177, G0409-G0411 • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034-H0037, H0039, H0040, H2000, H2001, H2010-H2020 • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 <p>CPT codes and place of service (POS)</p> <ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 90832-90834, 90836-90840 • Inpatient/partial hospitalization psychotherapy: 90816-90819, 90821-90824, 90826-90829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: 90863* • Electroconvulsive therapy (ECT): 90870 • Biofeedback: 90875, 90876 • Inpatient E&M: 99221-99223 • Subsequent hospital care: 99231-99233, 99238, 99239 • Inpatient consultation: 99251-99255 <p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit. See Appendix B for rules used to identify outpatient encounters from CAPER and TED-NI.</p> <p>Step 2: Determine the Index Episode Start Date (IESD). For each member identified in step 1, identify the date of the earliest encounter during the Intake Period with any diagnosis of depression. If the member had more than one encounter during the Intake Period, include only the first encounter.</p> <p>Step 3: Identify the Index Prescription Start Date (IPSD). The IPSD is the date of the earliest dispensing event for an antidepressant medication during the period of 30 days prior to the IESD (inclusive) through 14 days after the IESD (inclusive). Exclude members who did not fill a prescription for an antidepressant medication during this period.</p> <p>Step 4: Test for Negative Medication History. Exclude members who filled a prescription for an antidepressant in the 90 days (3 months) prior to the IPSD.</p> <p>Step 5: Calculate continuous enrollment. Members must be continuously enrolled (did not have two or more consecutive months of TRICARE ineligibility based on the VM6 Beneficiary Level files) for 90 days (3 months) prior to the IESD to 245 days after the IESD.</p>	CAPER, TED-NI, SIDR, TED-I
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Table B.5—Continued

Denominator Specifications	
Exclusions	Patient with an acute or nonacute hospital admission during the 30-day follow-up period either for a mental health or non-mental health reason. SIDR, TED-I
Measure Background	
Measure source	New measure
Rationale for measure inclusion	<p>Guideline Support This is a newly developed measure that will require validation. We believe the 30-day follow-up window represents an adequate trial to allow the provider to make a determination of initial response and evaluate side effects experienced by the patient (Department of Veterans Affairs and Department of Defense, 2010). The follow-up visit provides an opportunity to titrate dosage, substitute a different SSRI or SNRI, or discontinue pharmacological treatment. Although the RAND team selected a 30-day window for the first follow-up, we note that this time period was selected based on clinical judgment. Research has not yet been conducted to determine the precise threshold for the time period. Validation research will be necessary in order to determine the time frame that jointly maximizes the time available for the provider and patient to schedule a visit, while ensuring that the time frame is no longer than the period after which treatment engagement suffers. Finally, we draw attention to the different time frames specified for this measure and the T9 measures (PTSD and depression). This measure checks for two medication management visits (prescribing visit and follow-up medication management visit) within 30 days, while the T9 measure allows eight weeks in which to complete the second medication management visit. The reason for this difference is that the T9 measure assesses the minimally appropriate level of care for mental health patients, while this measure sets a higher threshold for ideal care.</p> <p>Research Evidence Although there is clear evidence that antidepressant medications are associated with symptom reduction (Fournier et al., 2010), one-third of patients will discontinue treatment within a month of receiving the prescription (Simon, 2002). For this reason, it is important for providers to maintain contact with patients in order to assess side effects and barriers to medication adherence and treatment engagement. Providers who follow up with patients have the opportunity to work collaboratively with them to problem-solve strategies to maintain medication adherence and treatment engagement.</p> <p>Feasibility This measure was implemented using administrative claims data and pharmacy data, making it very feasible to operationalize. A “medication management visit” was defined as any one of a series of selected E&M codes (see Key Definitions). CAPER data revealed somewhat frequent provider use of the E&M code 99499 “Unlisted evaluation and management service” which is not included in the evaluation and management definition used for this study. Providers with sole use of this CPT code make it difficult to know the actual complexity of their patient encounters. Use of this code in the absence of other more specific codes could result in an increased likelihood of relevant patient cases failing this quality measure.</p>

* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) is included in this study due to the common use of prescribing clinical psychologists in MTFs.

**Table B.6
Depression-T8: Psychotherapy for New Treatment Episode**

Measure Summary		
Measure statement	Percentage of depression patients in a new treatment episode who received any psychotherapy within four months	
Numerator	Patients in the denominator who received any psychotherapy within four months following the start of a new treatment episode	
Denominator	Patients in a new treatment episode of depression	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Psychotherapy	See Outpatient Psychotherapy in Key Definitions	CAPER, TED-NI
Any psychotherapy	One or more psychotherapy encounters in the four months following the start of the new treatment episode. If the initial visit triggering the new treatment episode is a psychotherapy-related encounter, there must be at least one additional psychotherapy encounter to pass.	CAPER, TED-NI
Denominator Specifications		Data Source
Patients with depression	See Diagnostic Cohort – Depression in Key Definitions	CAPER, TED-NI, SIDR, TED-I
New treatment episode	See New Treatment Episode – Depression in Key Definitions	CAPER, TED-NI, SIDR, TED-I
Exclusions	None.	

Table B.6—Continued

Measure Background	
Measure Source	Adapted from: Sorbero, M., Mannle, T.E., Smith, B., Watkins, K.E., Woodroffe, A., and Paddock, S.M., Program Evaluation of VHA Mental Health Services: Administrative Data Report (Contract# GS 10 F-0261k), Alexandria, Va.: Altarum Institute and RAND–University of Pittsburgh Health Institute, 2010.
Rationale for Measure Inclusion	<p>Source/Adaptation This measure was modified from a measure used in the VA Mental Health Program Evaluation (Farmer et al., 2010; Sorbero et al., 2010; Watkins et al., 2011). Modifications include a change in the definition of a break in care from 5 months to 6 months to match the time frame that is more generally used. The requirement for a 6-month break in antidepressant medication was maintained from the VA evaluation. However, in this study, NTEs were limited to those diagnosed in the outpatient setting.</p> <p>Guideline Support This measure is consistent with the recommendations of the VA/DoD Clinical Practice Guidelines for Management of Major Depressive Disorder (2009) and Post-Traumatic Stress (2010), which recommend psychotherapy as a first-line treatment option. The CPG authors identify CBT, IPT, and problem solving therapy as the three evidence-based psychotherapies for MDD with the strongest, most extensive evidence base. For PTSD, the CPG recommends trauma-focused psychotherapy (which includes components of exposure and/or cognitive restructuring) or stress inoculation training. The strength of the evidence for all recommendations was graded an 'A' indicating that there is good evidence to support the claim that the intervention improved outcomes. The American Psychiatric Association practice guidelines recommend that CBT be considered a first-line treatment option for both MDD and PTSD (American Psychiatric Association, 2004; Glenberg et al., 2010). Other appropriate treatments for PTSD included TF-CBT variants (e.g., EMDR, imagery rehearsal) and stress inoculation. An Agency for Healthcare Research and Quality report on treatment for PTSD confirms these conclusions (Jonas et al., 2013).</p> <p>Research Evidence Although there is research evidence supporting the claim that psychotherapy is effective as the primary or adjunct treatment for PTSD, this indicator does not capture the type of psychotherapy offered (i.e., evidence-based or not). Further, the threshold for success on the measure is met after a single psychotherapy session, which is unlikely to be adequate to achieve a response. For this reason this indicator should be used descriptively only.</p>
Feasibility	The numerator and denominator for this measure were calculated with administrative claims data making it very feasible to implement. Because of this study's focus on outpatient care, the definition of an NTE was limited to a new primary diagnosis at an outpatient visit. Therefore, patients whose NTE was initiated with a hospitalization are not included in the denominator for this measure.

Table B.7
Depression-T9: Receipt of Care in First Eight Weeks

Measure Summary		
Measure statement	Percentage of depression patients in a new treatment episode who received four psychotherapy visits or two evaluation and management visits within the first eight weeks	
Numerator	Patients in the denominator who receive four psychotherapy visits or two evaluation and management visits within eight weeks of a new treatment episode	
Denominator	Patients in a new treatment episode of depression	
Measure type	Process	
Care setting	Outpatient	
Numerator Specifications		Data Source
Psychotherapy	See Outpatient Psychotherapy in Key Definitions. Measure assesses whether at least four psychotherapy visits occurred during the eight weeks following the NTE visit.	CAPER, TED-NI
Outpatient evaluation and management (E&M) visit	See Outpatient Evaluation and Management Visit in Key Definitions. Measure assesses whether at least two E&M visits occurred during the eight weeks following the NTE visit. The E&M visit is used to approximate medication management visits, although this definition is likely to overestimate the actual number of medication related visits.	CAPER, TED-NI
Denominator Specifications		Data Source
Patients with depression	See Diagnostic Cohort—Depression in Key Definitions	CAPER, TED-NI, SIDR, TED-I
New treatment episode	See New Treatment Episode—Depression in Key Definitions	CAPER, TED-NI, SIDR, TED-I
Exclusions	Patient with an acute or nonacute hospital admission during the eight-week follow-up period either for a mental health or non-mental health reason. These patients are excluded from the measure because inpatient admission may prevent an outpatient follow-up visit from occurring.	SIDR, TED-I

Table B.7—Continued

Measure Background	
Measure source	New measure
Rationale for measure inclusion	<p>Source/Adaptation This measure was developed for this project via a RAND consensus process involving five clinician researchers and quality measurement experts. It is designed to assess a minimally appropriate level of care for mental health patients entering a new treatment episode.</p> <p>Guideline Support Research Evidence The VA/DoD Clinical Practice Guidelines for MDD and PTSD do not state explicitly the minimum or optimal number of visits during the initial treatment period (Department of Veterans Affairs and Department of Defense, 2009; Department of Veterans Affairs and Department of Defense, 2010). However, the measure is consistent with a key element of the MDD guideline which states that “patients require frequent visits early in treatment to assess response to intervention, suicidal ideation, side effects, and psychosocial support systems” (Department of Veterans Affairs and Department of Defense, 2009). The number of psychotherapy visits (4) matches the shortest evidence-based intervention recommended in the PTSD clinical practice guideline (brief CBT for acute stress disorder) (Department of Veterans Affairs and Department of Defense, 2010). The definition is also consistent with the technical specifications used in the VA Mental Health Program Evaluation in which any eight-week period with fewer than four psychotherapy visits was defined as a period in which the patient was not receiving psychotherapy (Horvitz-Lennon et al., 2009).</p> <p>The protocol of two E&M visits within eight weeks was selected as minimally appropriate follow-up because, in addition to the first visit to prescribe the new medication, a second visit would be needed to meet VA/DoD practice guidelines. These guidelines recommend that the dose be titrated at four to six weeks if symptoms are nonresponsive, and that the prescription should be changed at eight to 12 weeks if the patient’s symptoms remain nonresponsive (Department of Veterans Affairs and Department of Defense, 2009). If the four-to-six-week visit occurs on schedule with guidelines, the care would meet the threshold for this measure. Note that this measure provides a two-week buffer time period beyond CPG recommendations.</p> <p>We draw attention to the different time frames specified for this measure and the T6 measures. For medication management, this measure allows eight weeks in which to complete the second visit, while the T6 measures assess whether the second visit occurred within 30 days. The reason for this difference is this measure assesses the minimally appropriate level of care for mental health patients, while T6 sets a higher threshold for ideal care.</p>
Feasibility	<p>The numerator and denominator for this measure were calculated with administrative claims data, making it very feasible to implement. CAPER data revealed somewhat frequent provider use of the E&M code 99499 “Unlisted evaluation and management service,” which is not included in the evaluation and management definition used for this study. Frequent use of this CPT code in the absence of more specific codes may result in an increased likelihood of failing this quality measure where medication management occurred but at a visit that was not more specifically coded to the level of its complexity. Due to this study’s focus on outpatient care, the definition of an NTE was limited to a new primary diagnosis at an outpatient visit. Therefore, patients whose NTE was initiated with a hospitalization were not included in the denominator for this measure.</p>

Table B.8
Depression-T15: Follow-Up After Hospitalization for Mental Illness

Measure Summary	
Measure statement	Percentage of psychiatric inpatient hospital discharges of patients with depression with follow-up: T15a: Within seven days of discharge T15b: Within 30 days of discharge
Numerator	Inpatient discharges in the denominator where the inpatient discharge was followed with an outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner: T15a: Within seven days of discharge T15b: Within 30 days of discharge
Denominator	Patients with depression discharged from an acute inpatient setting with primary mental health diagnosis
Measure type	Process
Care setting	Outpatient

Table B.8—Continued

Numerator Specifications	Data Source
<p>Follow-up</p> <p>Rate 1: An outpatient visit, intensive outpatient encounter or partial hospitalization with a mental health practitioner or transitional care management service within 30 days after discharge. Include outpatient visits, intensive outpatient encounters or partial hospitalizations that occur on the date of discharge.</p> <p>Rate 2: An outpatient visit, intensive outpatient encounter, or partial hospitalization with a mental health practitioner or transitional care management service within seven days after discharge. Include outpatient visits, intensive outpatient encounters or partial hospitalizations that occur on the date of discharge.</p> <p>CPT Codes to Identify Outpatient Visit Type</p> <ul style="list-style-type: none"> • Outpatient psychotherapy: 90804–90815 • Education for self-management: 98960–98962 • Group education: 99078 • Outpatient E&M: 99201–99205, 99211–99215, 99217–99220 • Outpatient consultation: 99241–99245 • Home visit: 99341–99345, 99347–99350, 99510 • Preventive medicine: 99383–99387, 99394–99397, 99401–99404, 99411, 99412 <p>HCPCS:</p> <ul style="list-style-type: none"> • Social work, activity therapy, self-care education, group therapy: G0155, G0176, G0177, G0409–G0411, • Behavioral health counseling, medication training, partial hospitalization/ community treatment, rehabilitation and community support: H0002, H0004, H0031, H0034–H0037, H0039, H0040, H2000, H2001, H2010–H2020 • Mental health medication management: M0064 • Partial hospitalization, intensive outpatient psychiatric treatment, crisis intervention: S0201, S9480, S9484, S9485 <p>CPT codes and place of service (POS)</p> <ul style="list-style-type: none"> • Psychiatric diagnostic: 90801, 90802 2013: 90791, 90792 • Psychotherapy and crisis (2013): 90832–90834, 90836–90840 • Inpatient/partial hospitalization psychotherapy: 90816–90819, 90821–90824, 90826–90829 • Psychoanalysis: 90845 • Family/group: 90847, 90849, 90853, 90857 • Medication management: 90862, 2013: +90863* • Electroconvulsive therapy (ECT): 90870 • Biofeedback: 90875, 90876 • Inpatient E&M: 99221–99223 • Subsequent hospital care: 99231–99233, 99238, 99239 • Inpatient consultation: 99251–99255 <p>WITH outpatient POS: Above CPT-related encounter was attached to an outpatient visit other than emergency department. See Appendix C for rules used to identify outpatient encounters from CAPER and TED-NI.</p> <p>Transitional care management (TCM) services: TCM where the date of service on the claim is 29 days after the date the patient was discharged with a principal diagnosis of mental illness.</p> <p>Applies to 7- and 30-day rates: 99496, face-to-face contact within 7 days</p> <p>Applies to 30-day rate: 99495, face-to-face contact within 14 days</p> <p>Note: Transitional care management is a 30-day period that begins on the date of discharge and continues for the next 29 days. The date of service on the claim is 29 days after discharge and not the date of the face-to-face visit.</p>	<p>CAPER, TED-NI, SIDR, TED-I</p>

Table B.8—Continued

Numerator Specifications		Data Source
Mental health practitioner	CAPER: Psychiatrist: 070, 071, 073, 076 Psychologist/Psychoanalyst: 072, 702 Psychiatric Nurse Practitioner: 611 Clinical Social Worker: 703, 714	CAPER: Provider Specialty (PROVSPEC1)
	TED-NI: Psychiatrist: 26 Psychologist: 62 Clinical Psychiatric Nurse Specialist: 91 Clinical Social Worker: 85 Certified Marriage and Family Therapist: 94	TED-NI: Provider Specialty (PROVSPEC)
Denominator Specifications		Data Source
Patients with depression	See Diagnostic Cohort—Depression in Key Definitions	CAPER, TED-NI, SIDR, TED-I
Primary mental health illness	Inpatient primary discharge diagnosis as defined by ICD-9-CM diagnosis codes: 295.xx–299.xx, 300.3, 300.4, 301.xx, 308.x, 309.xx, 311–314.xx. See Appendix C for rules used to identify acute hospital admissions from SIDR and TED-I.	SIDR, TED-I
Inpatient discharge	<p>Discharge from an acute inpatient setting during the first 11 months of the measurement year. Unit of measurement is admissions rather than members. Include all discharges for members who have more than one discharge in the first 11 months of the measurement year.</p> <p>If the discharge is followed by readmission or direct transfer to an acute facility for a primary mental health diagnosis (290.xx, 293.xx–302.xx, 306.xx–316) and within the 30-day period, count only the readmission discharge or the discharge from the facility to which the member was transferred. Although re-hospitalization might not be for a selected mental health disorder, it is probably for a related condition.</p>	SIDR, TED-I
Exclusions	<p>Late in the measurement year: Both the initial discharge and readmission/direct transfer discharge if the readmission/direct transfer discharge occurred in month 12 of the measurement year.</p> <p>Nonacute facility, mental health: Discharges followed by readmission or direct transfer to a nonacute facility for any primary mental health diagnosis (290.xx, 293.xx–302.xx, 306.xx–316) within the 30-day follow-up period. These discharges are excluded from the measure because readmission or transfer may prevent an outpatient follow-up visit from taking place.</p> <p>Acute or nonacute facility, non-mental health: Discharges in which the patient transferred directly or readmitted within 30 days of discharge to an acute or nonacute facility for a non-mental health primary diagnosis. These discharges are excluded from the measure because readmission or transfer may prevent an outpatient follow-up visit from occurring.</p>	SIDR, TED-I
Nonacute care	See Appendix B for rules used to identify acute and nonacute hospital admissions from SIDR, TED-I, and TED-NI	SIDR, TED-I, TED-NI

Table B.8—Continued

Denominator Specifications	Data Source	
<p>TED-I: Rehabilitation: 46, 48, 56, 82 Home health care: 70 Skilled nursing facility: 76 Residential/extended care facility: 72, 73 Hospice: 78, 79 Substance use disorders rehabilitation facility: 82 Ambulatory surgery: 75, 92</p>	<p>TED-I: Type of Institution (INSTTYPE)</p>	
<p>TED-NI: Skilled nursing facility: 31 Nursing facility: 32 Hospice: 34 Intermediate care facility: 54 Residential substance abuse treatment facility: 55 Psychiatric residential treatment center: 56 Comprehensive inpatient rehabilitation facility: 61</p>	<p>TED-NI: Place of Service (PLACE)</p>	
<p>HCPCS: Behavioral health, residential: H0017, H0018, H0019, T2048</p>	<p>TED-NI CPT codes</p>	
<p>Transfer</p>	<p>See Appendix B for rules used to identify acute and nonacute hospital admissions from SIDR, TED-I, and TED-NI.</p>	<p>SIDR, TED-I, TED-NI</p>
<p>SIDR: <i>Acute (or not specified) transfer:</i> 21 = Transferred to Army MTF 22 = Transferred to Navy MTF 23 = Transferred to Air Force MTF 24 = Discharged to another federal facility 26 = Discharged to civilian acute care (non-AD)</p>	<p>SIDR: Disposition Type (DISPTYPE)</p>	
<p><i>Nonacute transfer:</i> 27 = Discharged to skilled civilian nursing facility (non-AD) 28 = Discharged to civilian intermediate care facility (non-AD)</p>		
<p>TED-I: <i>Acute (or not specified) transfer:</i> 02 = Transferred; 05 = Discharged/transferred to another type of institution 43 = Discharged/transferred to a federal hospital 65 = Discharged/transferred to a psychiatric hospital 66 = Discharged/transferred to a critical access hospital 70 = Discharged/transferred to another type of health care institution not elsewhere defined</p> <p><i>Nonacute transfer:</i> 03 = Discharged/transferred to a skilled nursing facility (SNF) 04 = Discharged/transferred to an intermediate care facility (ICF) 51 = Discharged to hospice-medical facility 61 = Discharged/transferred within this institution to hosp-based Medicare aprvd swing-bed 62 = Discharged/transferred to another rehab facility 63 = Discharged/transferred to a long-term care hospital 64 = Discharged/transferred to a nursing facility</p>	<p>TED-I: Disposition Status (DISPSTAT)</p>	

Table B.8—Continued

Measure Background	
Measure source	National Quality Forum, NQF #0576 Follow-Up After Hospitalization for Mental Illness, Last Updated: January 6, 2014. As of July 30, 2014: http://www.qualityforum.org/QPS National Committee for Quality Assurance, HEDIS 2013. As of April 15, 2013: http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2013.aspx
Rationale for measure inclusion	<p>Source/Adaptation This is an NQF-endorsed measure developed by the National Committee for Quality Assurance (National Quality Forum, 2013a) and included in the Healthcare Effectiveness Data and Information Set (HEDIS) 2013 (National Committee for Quality Assurance, 2013a). NCQA states in its rationale statement: “as treatment of mentally ill patients continues to shift from inpatient to outpatient settings, coordinating and maintaining continuity of care are important aspects of health care quality. There are several clinical reasons for ensuring adequate and timely follow-up care for patients after discharge from an institution or hospital for mental illness:</p> <ul style="list-style-type: none"> • Preventing readmission • Keeping track of those who will eventually require readmission • Providing transitional care from inpatient to outpatient setting.” <p>Guideline Support The care continuity targeted by this measure is not specifically included in the 2010 VA/DoD Clinical Practice Guideline for PTSD (2010). However, the guideline does make references to the potential use of case management to coordinate and increase continuity of care (Rosen et al. 2006). The 2009 VA/DoD Clinical Practice Guideline for MDD (2009) also recommends the use of a case manager to coordinate communication between primary and mental health care specialists as one component of case management (Bower et al., 2006; Gilbody et al., 2006; Williams et al., 2007). This measure has face validity, and it is the standard of care to provide patients with adequate follow-up after an inpatient psychiatric stay. Furthermore, this indicator is an industry standard measure, as indicated by its inclusion in HEDIS.</p> <p>Research Evidence It is important to provide regular follow-up therapy to patients after they have been hospitalized for mental illness. An outpatient visit with a mental health practitioner after discharge is recommended to ensure that the patient’s transition to the home and work environment is supported and that gains made during hospitalization are not lost. It also helps health care providers to detect problems early and provide continuing care.</p> <p>Missed appointments increase the likelihood of rehospitalization and increase the cost of outpatient care (Mitchell and Selmes, 2007). In terms of clinical characteristics, individuals with a co-occurring serious mental illness and a substance use disorder have high rates of treatment disengagement, as do individuals with higher levels of psychopathology (Kreyenbuhl, Nossel and Dixon, 2009).</p> <p>Disengagement from mental health services can be a significant problem that can lead to exacerbation of psychiatric symptoms, repeated hospitalizations, first-episode or recurrent homelessness, violence against others, and suicide (Dixon et al., 2009; Fischer et al., 2008). Communication between inpatient and outpatient clinicians is an intervention associated with improved odds of a successful linkage to postdischarge outpatient care (Boyer et al., 2000).</p>

Table B.8—Continued

Measure Background	
Feasibility	The numerator and denominator for this measure were calculated with administrative claims data, making it theoretically very feasible to implement. This rate was computed based on administrative data from SIDR and TED-I. However, identifying and summarizing separate inpatient stays from these data proved to be challenging. For example, a disposition status of “still a patient (interim billing)” was followed with a line with a “new” (next day) admission date. An attempt was made to reconcile such cases (this example was assumed to be a continuing stay rather than a new admission given the coded status). Other cases, for example with a status of “discharge” or “return to active duty” with a next-day admission, were assumed to be a new inpatient stay. (See Appendix C for details of the assumptions used to process these data for analysis.) However, this measure focuses on the last readmission discharge in 30 days, if applicable. Difficulty distinguishing between a continued stay and an immediate readmission would not have significant effect, since the last readmission discharge is the discharge of interest.

* Code +90863 (Pharmacologic management, including prescription and review of medication, when performed with psychotherapy services [for providers who may not report E&M codes]) is not included in the 2014 updated definition of the numerator for NQF #0576. However, it has been included in this study due to the common use of prescribing clinical psychologists in MTFs.

**Table B.9
Depression-RU1: Psychiatric Inpatient Discharges**

Measure Summary	
Measure statement	Number of psychiatric discharges per 1,000 patients with depression
Numerator	Number of psychiatric discharges during the measurement period for patients in the denominator
Denominator	Number of patients with depression divided by 1,000
Measure type	Resource utilization
Care setting	Outpatient
Numerator Specifications	
Psychiatric discharge	Acute inpatient admission with primary discharge diagnosis code from ICD-9-CM Diagnosis codes 290.xx–319.xx during the measurement period. Unit of measurement is discharges rather than members. See Appendix B for rules used to identify acute hospital admissions from SIDR and TED-I.
Measurement period	Period of time during which care is evaluated. For this study, the measurement period was the 12 months after cohort entry.
Denominator Specifications	
Patients with depression	See Diagnostic Cohort—Depression in Key Definitions
Exclusions	None

Data Source

SIDR, TED-I

CAPER, TED-NI, SIDR, TED-I

Table B.9—Continued

Measure Background	
Measure source	<p>Adapted from: Department of Defense, Deployment Health Clinical Center, Post-Deployment Health Guideline Expert Panel (2001). <i>Recommendations for monitoring metrics: DoD/VA Practice Guideline for Post-Deployment Health Evaluation and Management</i>. Retrieved from http://www.pdhealth.mil/guidelines/downloads/view/3/2_recommendations_for_metrics.pdf.</p> <p>And Sorbero, M., Mannle, T.E., Smith, B., Watkins, K.E., Woodroffe, A., and Paddock, S.M., Program Evaluation of VHA Mental Health Services: Administrative Data Report (Contract# GS 10 F-0261k), Alexandria, Va.: Altarum Institute and RAND–University of Pittsburgh Health Institute, 2010.</p>
Rationale for measure inclusion	<p>Source/Adaptation This measure stems from the recommendations of an expert panel that made recommendations for monitoring postdeployment health (Department of Defense, Deployment Health Clinical Center and Panel, 2001) as well as the VA Mental Health Program Evaluation (Sorbero et al., 2010).</p> <p>Guideline Support This indicator is based on recommendations in the 2010 VA/DoD Clinical Practice Guideline for Inpatient psychiatric care is appropriate and recommended when the symptoms of a PH condition are severe or when the patient poses a threat to him or herself or others (Department of Veterans Affairs and Department of Defense, 2009; 2010). However, inpatient care also imposes the most restrictions on patients and is a substantial cost driver of total treatment expenditures (Luppa et al., 2007). For these reasons and others, it is generally recommended that patients receive care in the least restrictive setting appropriate for the severity of their condition. Although it will always be the case that some patients are best served by inpatient care, high-quality outpatient care delivered in a timely fashion should avert some potential hospitalizations.</p> <p>Research Evidence This measure provides the MHS a tracking metric to follow the rate of inpatient hospitalization across time. Although there is no clear benchmark for the appropriate rate of psychiatric hospitalization among patients with PH conditions, by tracking trends over time and in response to improvements in outpatient psychological care, the MHS will be in a position to monitor use and respond to indications of overuse.</p>
Feasibility	<p>The numerator and denominator for this measure were calculated with administrative claims data, making it feasible to implement. This rate was computed based on administrative data from SIDR and TED-I. Identifying and summarizing separate inpatient stays from these data proved to be challenging. For example, a disposition status of “still a patient (interim billing) was followed with a line with a “new” (next day) admission date. An attempt was made to reconcile such cases (this example was assumed to be a continuing stay rather than a new admission given the coded status). Other cases, for example with a status of “discharge” or “return to active duty” with a next-day admission, were assumed to be a new inpatient stay. The default assumption when there was a lack of information that would strongly support interpreting data as a continued stay rather than an inpatient stay and readmission was to assume readmission. (See Appendix C for details of the assumptions used to process these data for analysis.)</p>

Rules for Processing Administrative Data for Inpatient Stays and Outpatient Visits

The administrative data sources used for this study to summarize inpatient and outpatient care (excluding dental care) were the following:

- Standard Inpatient Data Record (SIDR) for direct inpatient care
- TRICARE Encounter Data Institutional (TED-I) for purchased facility care
- Comprehensive Ambulatory Professional Encounter Record (CAPER) for direct outpatient care
- TRICARE Encounter Data Non-Institutional (TED-NI) for purchased provider care.

While these data sets are distinguished as outpatient/inpatient and provider/facility, they may all apply to the same date(s) of service. The interpretation of crossover of data lines of service within these data sets was challenging. Also, variables distinguishing characteristics of care provided (e.g., place of service, provider specialty, disposition) vary greatly among the data sets in both content and level of detail. These inconsistencies presented challenges to classifying and describing care across these data sets. Specific rules were developed to categorize data in as standardized a manner as possible across the four data sets. The rules dealt with issues such as identifying providers of similar specialty, handling of same-day encounters with individual providers, and classifying care by type and place of service.

Inpatient Stays

Rules for inpatient data were used to identify individual inpatient stays, distinguish acute inpatient care from nonacute care, and restrict discharges to those that occurred within the 12-month measurement period. We applied these rules to administrative data in SIDR and TED-I. Data variables that were used for these purposes included admission and disposition dates, institution type, and discharge status. Information in TED-I was often provided in multiple data lines as patients in longer stays may have had interim billing. Multiple lines that had the same patient identification number and

admission date were grouped together, and the latest disposition date was identified as the end of that stay. However, several lines of data were much more difficult to interpret; these had differing admission dates, but contiguous dates of service. It was not possible to determine whether these represented actual readmissions or the continuation of a single inpatient stay. An inpatient stay that had a disposition of “transferred” (SIDR) or a status of “still a patient (interim bill)” (TED-I) and had a subsequent line that started on the next calendar day was considered to be a continuation of that inpatient stay and not a new admission. Other data that were unclear in that the disposition/status suggested a discharge were assumed to be separate admissions.

Nonacute care. Nonacute care included rehabilitation, residential/extended care, skilled nursing facility care, hospice care, and home care. Institution and disposition variables were used to distinguish between acute and nonacute care within stays and as a discharge destination, where applicable. However, the definitions of these variables differed by data source and were limited in their specificity, thereby making it difficult to assign level of care in some cases.

Partial hospitalization. These more intensive outpatient services are often coded with inpatient data. A search of the study data, however, found no partial hospitalization codes that fell on the same dates as any inpatient stay dates. Therefore, partial hospitalizations were identified by CPT code and TED-NI place of service code in the outpatient data where they were maintained as outpatient visits.

Transfer. A direct transfer from one acute facility to another acute facility where both stays were contained in the database was considered to be a single acute inpatient stay. An inpatient stay that had a disposition of “transferred” or “still a patient” and had a subsequent line that started on the next calendar day was considered to be a continuation of that inpatient stay and not a new admission.

Care that appeared in the outpatient administrative data files (CAPER, TED-NI) that occurred during the dates of an acute inpatient stay (second day of admission through day prior to discharge OR day of admission or discharge and labeled “inpatient”) was considered to be part of that inpatient stay and was not counted as a separate outpatient visit. Outpatient visits occurring on the date of admission or date of discharge that were not labeled “inpatient” were maintained as outpatient encounters. Outpatient encounters concurrent with nonacute facility care or partial hospitalization were classified as outpatient encounters. See Tables C.1 and C.2 for the specific modifications made and rationale for these modifications for the SIDR and TED-I databases.

Outpatient Visits

Rules for outpatient data were used to identify emergency room, ambulatory surgery, and other types of outpatient visits that occurred during the 12-month measurement period. We applied these rules to administrative data in CAPER and TED-NI. Mul-

Table C.1
SIDR Modification Rules and Rationale

SIDR Variables	Variable Description and Values	Modification and Rationale
ADMIT_DT	Admission date	<p>Identification of individual stays: For each patient ID, group lines by dates of admission</p> <p>One stay = same admission date through latest contiguous disposition date</p> <p>One stay = different admission date and disposition indicates "transfer" and next line of data begins with the next calendar date (see DISPTYPE rationale below).</p>
DISPDATE	Disposition date	
DISPTYPE	Disposition type	
DISPTYPE	<p>Disposition type:</p> <p><i>Discharged:</i> 01 = Returned to duty, active duty only 04 = AWOL, active duty only 05 = Home, non-active duty 06 =Against medical advice (AMA), non-AD</p> <p><i>Acute (or not specified) transfer:</i> 21 = Transferred to Army MTF 22 = Transferred to Navy MTF 23 = Transferred to Air Force MTF 24 = Discharged to another federal facility 26 = Discharged to civilian acute care (non-AD)</p> <p><i>Non-acute transfer:</i> 27 = Discharged to skilled civilian nursing facility (non-AD) 28 = Discharged to civilian intermediate care facility (non-AD)</p>	<p>Discharge/Transfer: Check disposition to identify status as discharge or transfer. Count transfer from one acute institution to another acute institution/ward (both contained in the database) as a single acute stay, with admission date from the first record and discharge date from the last record. Also include as a transfer cases where the disposition was "transferred" but the next line of data is not continuous but begins with the next calendar day.</p> <p>Identification of nonacute care: Default assumption in SIDR is that care is acute as there is no institution-type variable or acute care variable in the database used. Check TED-I for any stays on same dates and, if such data exist, check for nonacute care (see TED-I rules below for INSTTYPE). Separate nonacute stays from acute care stays. Distinguish discharges to home from transfers to nonacute care.</p>
DISPDATE	Disposition date	<p>Measurement period: Include acute inpatient stays where discharge/final transfer date falls within 12-month measurement period.</p>
ADMIT_DT	Admission date	<p>Length of Stay (LOS) for acute stays: Computation of LOS = Discharge date – admission date. If discharge date and admission date are the same, set LOS equal to 1.</p>
DISPDATE	Disposition date	

Table C.2
TED-I Modification Rules and Rationale

TED-I Variables	Variable Description and Values	Modification and Rationale
ADMDATE	Admission date	Identification of individual stays: For each patient ID, group lines by dates of admission
ENDDATE	End date of care	One stay = same admission date through latest contiguous disposition date
DISPSTAT	Disposition status	One stay = different admission date and disposition indicates “still a patient (interim bill)” and next line of data begins with the next calendar date (see DISPSTAT rationale below).
DISPSTAT	<p>Disposition status: <i>No transfer or discharge:</i> 30 = Still a patient (interim bill)</p> <p><i>Discharged:</i> 01 = Discharged 06 = Discharged/transferred to home under care of home health agency 07 = Left against medical advice 08 = Discharged/transferred to home under care of home IV provider 21 = Discharged/transferred to Court/Law Enforcement 50 = Discharged to hospice at home</p> <p><i>Acute (or not specified) transfer:</i> 02 = Transferred 05 = Discharged/transferred to another type of institution 43 = Discharged/transferred to a federal hospital 65 = Discharged/transferred to a psychiatric hospital 66 = Discharged/transferred to a critical access hospital 70 = Discharged/transferred to another type of health care institution not elsewhere defined</p> <p><i>Nonacute transfer:</i> 03 = Discharged/transferred to a skilled nursing facility (SNF) 04 = Discharged/transferred to an intermediate care facility (ICF) 51 = Discharged to hospice-medical facility 61 = Discharged/transferred within this institution to hosp-based Medicare apprvd swing-bed 62 = Discharged/transferred to another rehab facility 63 = Discharged/transferred to a long-term care hospital 64 = Discharged/transferred to a nursing facility</p>	Discharge/Transfer: Check disposition to identify status as discharge or transfer. Count transfer from one acute institution to another acute institution/ward (both contained in the database) as a single acute stay, with admission date from the first record and discharge date from the last record. Separate nonacute stays from acute care stays. Distinguish discharges to home from transfers to nonacute care. Also include as a transfer cases where the disposition was “still a patient (interim bill)” but the next line of data is not continuous but begins with the next calendar day.

Table C.2—Continued

TED-I Variables	Variable Description and Values	Modification and Rationale
INSTTYPE	Institution type: 75 = Hospital-based ambulatory surgery center 92 = Freestanding ambulatory surgery center	Ambulatory surgery: This is NOT included as acute inpatient care. Separate out as outpatient care.
INSTTYPE	Institution type: 78 = Non-hospital based hospice 79 = Hospital-based hospice	Hospice care: This is NOT included as acute inpatient care. Separate out as hospice care.
INSTTYPE	Institution type: 70 = Home health care agency	Home health care: This is NOT included as acute inpatient care. Separate out as home care.
		Start and end date of approved eligibility for home care; no data on visits.
INSTTYPE	Institution type: 46 = Rehabilitation 48 = Chronic disease 72 = Residential treatment center 73 = Extended care facility 76 = Skilled nursing facility 82 = Substance use disorders rehabilitation facility (SUDRF)	Other nonacute care: This is NOT included as acute patient care. Report separately as nonacute care.
INSTTYPE	Change of INSTTYPE from acute to nonacute	Transfer to nonacute care: For interim billing lines, check for change in institution type from acute to nonacute (as listed in row above). Limit acute inpatient stay to lines codes as acute care institution.
ENDDATE	End date of care	Measurement period: Include acute inpatient stays where discharge/final transfer date falls within 12-month measurement period.
ADMDATE	Admission date	Length of Stay (LOS) for acute stays: Computation of LOS = Discharge date – admission date. If discharge date and admission date are the same, set LOS equal to 1.
ENDDATE	End date of care	

tiple encounter records on the same date for emergency department or ambulatory surgery were counted as a single visit on that date regardless of the number of providers or specialties involved. Encounter records (other than emergency department or ambulatory surgery) on the same day for providers with different specialties were counted as separate visits. Multiple lines of data with the same provider specialty on the same date were counted as a single visit with that specialty. Encounter records with providers who generally provide ancillary services, such as general duty nurses, corpsmen, and interns/residents without a license, were not counted as separate outpatient visits.

Place of service and provider specialty variables were used to distinguish between emergency department or ambulatory surgery visits and other outpatient visits. However, these variables are defined uniquely in the two data sources and vary in their level of specificity. Records in these files that listed other charges, such as laboratory, patient transportation, and durable medical equipment were not counted as outpatient visits. Outpatient encounter records for pharmacy and managed care were also not counted as outpatient visits, as these were not uniformly coded in the variables used and may not represent actual visits.

An outpatient encounter record with a provider specialty of radiology was not counted as an outpatient visit if it occurred on the same date as another record with a different provider specialty, as it was considered to be a related service (e.g., chest x-ray). However, an outpatient encounter record with a provider specialty of radiology was counted as an outpatient visit if it was the only outpatient encounter record on that date.

Outpatient encounter records for care that occurred during an acute care stay with a date of service equal to the second day of admission through the day prior to discharge OR on the day of admission or discharge and coded as “inpatient” were considered to be part of that inpatient stay. Outpatient visits on the date of admission or date of discharge that were not coded “inpatient” were counted as outpatient visits. Outpatient encounter records concurrent with dates of service for a non-acute care facility stay were counted as outpatient visits. See Tables C.3 and C.4 for the specific modifications made and rationale for these modifications for the CAPER and TED-NI databases. See Tables C.5 and C.6 for details of how provider specialties were categorized.

Table C.3
CAPER Modification Rules and Rationale

CAPER Variables	Variable Description and Values	Modification and Rationale
MEPR1 ENCDATE_R	First character of MEPRS code: A = Inpatient care AND Date of service occurs during SIDR or TED-I acute care stay	Do not count as outpatient visit if it coincides with any date during an acute care stay under direct care or purchased care.
MEPR1 ENCDATE_R	First character of MEPRS code: A = Inpatient care AND No same-date inpatient encounter record for acute care	Count as outpatient visit if there is no acute care stay on the same date in SIDR or TED-I files.

Table C.3—Continued

CAPER Variables	Variable Description and Values	Modification and Rationale
MEPR1 ENCDATE_R	First character of MEPRS code: Any value other than "A" AND Date of service occurs on any day of the SIDR or TED-I acute care stay except the first or last	Check for inpatient care: Count as inpatient care if it coincides with Day 2 through the day before discharge of an acute care stay.
MEPR1 ENCDATE_R	First character of MEPRS code: Any value other than "A" AND Date of service occurs on the first or last day of the SIDR or TED-I acute care stay	Count as outpatient visit if date of service falls on the date of admission or date of discharge of an acute care stay.
MEPR2 ENCDATE_R	MEPRS code, second level: BI = Emergency medicine	Multiple emergency department (ED) encounters on same date: Roll all same-date occurrences of this code into a single ED visit.
MEPR3	MEPRS code, third level: FEA = Patient transportation	Patient transportation: Drop lines for patient transportation.
PROVSPEC1	Provider specialty: See Table C.5 for combined codes for same provider type for counting visits (other than emergency department, home, and ambulatory surgery).	Identify individual provider encounters: Count multiple lines for same provider type on same date of service as on outpatient visit.
PROVSPEC1	Provider specialty: See Table C.5 for codes of providers whose visits are not counted as an independent encounter.	Other providers: Do not count lines with these provider types as outpatient visits. These providers usually work in conjunction with another provider or provide another service (e.g., dispensing durable medical equipment (DME), administrative disability processing). Note special handling of radiology visits in the next row.
PROVSPEC1	Provider specialty: Code = Radiology (See Table C.5.)	Radiology providers: Count a line with PROVSPEC1 = radiology code as an outpatient visit if there is not another outpatient visit with a different specialty code that occurs on the same date. Do not count a line with PROVSPEC1 = radiology code as an outpatient visit if an outpatient visit with a different specialty code occurs on the same date
ENCDATE_R	Date of service	Identify individual outpatient visits: Count each outpatient encounter on a different date with a different provider as a separate outpatient visit.

Table C.4
TED-NI Modification Rules and Rationale

TED-NI Variables	Variable Description and Values	Modification and Rationale
PLACE ENDDATE	Place of service: 21 = Inpatient hospital 51 = Inpatient psychiatric facility AND Date is concurrent with inpatient stay in SIDR or TED-I	Check for inpatient care: Count as inpatient care if it occurs on any date during an acute inpatient stay. If no inpatient admission or nonacute care only, keep in TED-NI as outpatient.
PLACE ENDDATE	Place of service: 21 = Inpatient hospital 51 = Inpatient psychiatric facility AND No same-date inpatient encounter record for acute care	Count as outpatient visit if there is no acute care stay on the same date in SIDR or TED-I files.
PLACE ENDDATE Same date is also inpatient in SIDR or TEDI for a MH admission	Place of service: 52 = partial hospitalization AND Service is concurrent with TED-I stay. NOT 21 (NOT inpatient hospital) AND NOT 51 (NOT inpatient psychiatric facility) AND Date of service occurs on any day of an acute inpatient stay in SIDR or TED-I except the first or last	Check for inpatient care: Count as inpatient care if occurs on same date as Day 2 through the day before discharge of an acute care stay UNLESS place of service is 52. Visits that fall on the day of admission or day of discharge (and PLACE NE 21 or 51) are counted as outpatient visits.
PLACE ENDDATE	Place of service: NOT 21 (NOT inpatient hospital) AND NOT 51 (NOT inpatient psychiatric facility) AND Date of service occurs on the first or last day of the SIDR or TED-I acute care stay	Count as outpatient visit if date of service falls on the date of admission or date of discharge of an acute care stay.
PROVSPEC HCPCS CPT	Provider specialty: 51 = Medical supply company HCPCS code starts with A, B, E, or L = Durable medical equipment (DME)	DME: Drop lines for DME charges
PLACE	Place of service: 81 = Independent laboratory	Laboratory: Drop lines for laboratory charges
PLACE	Place of service: 41 = Ambulance, land 42 = Ambulance, air or water	Patient transportation: Drop lines for ambulance rides

Table C.4—Continued

TED-NI Variables	Variable Description and Values	Modification and Rationale
Ppsprod	Product line: 3 = Facility 15 = None PROVSPEC values for PPSPROD "None" in study TED-NI data were the following: Chiropractor, licensed Nurses (RN) Nurses (LVN) Miscellaneous Medical supply co Ambulance service provider Public health or welfare agencies Independent laboratory (billing independently) Pharmacy	Facility and other charges: Drop lines for Facility charges Drop lines for "None" for Other nonrelevant charges including DME, ambulance, ancillary personnel
PLACE	Place of service: 12 = Home 23 = Emergency room–hospital 24 = Ambulatory surgical center	Selected multiprovider encounters: Group all same-date visits in the same place as one encounter regardless of number and types of provider specialties
PROVSPEC	Provider specialty: See Table C.6 for combined codes for same provider type for counting visits (other than emergency department, home, and ambulatory surgery).	Identify individual provider encounters: Combine multiple lines for same provider specialty within a visit date
PROVSPEC	Provider specialty: See Table C.6 for codes of providers whose visits are not counted as an independent encounter	Other providers: Do not count visits with these providers as an independent visit. These providers usually work in conjunction with another provider or provide another service (e.g., dispensing DME, administrative disability processing). Note special handling of radiology visits in next row.
PROVSPEC	Provider specialty: Code = Radiology (See Table C.6.)	Radiology providers: Count a line with PROVSPEC = radiology code as an outpatient visit if there is not another outpatient visit with a different specialty code on the same date. Do not count a line with PROVSPEC = radiology code as an outpatient visit if an outpatient visit with a different specialty code occurs on the same date.
ENDDATE	End date of care	Identify individual outpatient visits: Count each outpatient encounter on a different date with a different provider as a separate outpatient visit

Table C.5
PROVSPEC1¹ (CAPER) Specialty Categories

Code	PROVSPEC1
302	Aerospace Med Flight Surgeon/Family Practice Physician
300	Aerospace Medicine Physician
301	Aerospace Medicine Resident/Intern With License
074	Alcohol Abuse Counselor
012	Allergist
041	Allergist, Pediatric
092	Anesthesiologist
093	Anesthesiology Resident/Intern With License
094	Anesthetist
612	Nurse Anesthetist
709	Audiologist
101	Thoracic Surgeon
103	Cardiac Surgeon
014	Cardiologist
043	Cardiologist, Pediatric
702	Clinical Psychologist
102	Colon and Rectal Surgeon
080	Dermatologist
081	Dermatologist Resident/Intern With License
704	Dietician - Nutritionist
075	Drug Abuse Counselor
004	Emergency Physician
005	Emergency Physician Resident/Intern With License
089	Emergency Physician/Emergency Medical Services
086	Emergency Physician/Medical Toxicology
087	Emergency Physician/Pediatric Emergency Medicine
088	Emergency Physician/Sports Medicine

¹ Specialties grouped together with encounters on the same date were considered the same specialty visit.

Table C.5—Continued

Code	PROVSPEC1
016	Endocrinologist
151	Endocrinologist, Ob/Gyn
045	Endocrinologist, Pediatric
001	Family Practice Physician
003	Family Practice Physician Resident/Intern With License
000	General Medical Officer
018	Gastroenterologist
053	Gastroenterologist, Pediatric
100	General Surgeon
108	Surgery Resident/Intern With License
017	Geriatrician
141	Hand Surgeon
019	Hematologist
048	Hematologist, Pediatric
322	Hyperbaric/Undersea Physician
931	Infectious Disease
022	Infectious Diseases Physician
051	Infectious Diseases Physician, Pediatric
008	Internal Med Physician/Clinical Cardiac Electrophysiology
932	Internal Medicine
097	Internal Medicine Physician/Critical Care Medicine
098	Internal Medicine Physician/Interventional Cardiology
099	Internal Medicine Physician/Sport Medicine
028	Internal Medicine Resident/Intern With License
011	Internist
024	Nephrologist
054	Nephrologist, Pediatric
106	Neurological Surgeon
060	Neurologist
061	Neurologist Resident/Intern With License

Table C.5—Continued

Code	PROVSPEC1
049	Neurologist, Pediatric
608	Certified Nurse Midwife
609	Nurse Midwife - Entry Level
602	Ob/Gyn Nurse Practitioner
154	Ob/Gyn Resident/Intern With License
155	Ob/Gyn Resident/Intern Without License
150	Obstetrician and Gynecologist (Ob/Gyn)
964	Obstetrics
156	Physician/Obstetrics and Gynecology/Critical Care Medicine
158	Physician/Obstetrics and Gynecology/Fetal Medicine
157	Physician/Obstetrics and Gynecology/Gynecology
943	Occupational Health
321	Occupational Medicine Physician
966	Therapy, Occupational
705	Occupational Therapist
013	Oncologist
152	Oncologist, Ob/Gyn
120	Ophthalmologist
945	Ophthalmology
121	Ophthalmology Resident/Intern With License
708	Optometrist
800	Oral Surgeon
801	Oral Surgery Resident With License
142	Orthopedic Resident/Intern With License
140	Orthopedic Surgeon
130	Otorhinolaryngologist
131	Otorhinolaryngology Resident/Intern With License
046	Neonatalogist - Perinatologist
042	Adolescent Medicine Physician
603	Pediatric Nurse Practitioner

Table C.5—Continued

Code	PROVSPEC1
052	Pediatric Resident/Intern With License
104	Pediatric Surgeon
040	Pediatrician
035	Pediatrician/Pediatric Critical Care Medicine
033	Pediatrician/Pediatric Developmental - Behavioral
105	Peripheral Vascular Surgeon
107	Plastic Surgeon
950	Physical Medicine & Rehabilitation
090	Physical Medicine Physician
096	Physician/Physical Med and Rehab/Spinal Cord Injury Med
324	Physician/Preventive Medicine/Medical Toxicology
325	Physician/Prevent Med/Public Health and General Prevent Med
320	Preventive Medicine Physician
960	Therapy, Physical
706	Physical Therapist
901	Physician Assistant
083	Physician/Dermatology/Clinical and Laboratory Immunology
084	Physician/Dermatology/Dermatological Surgery
146	Physician/Ortho Surgery/Orthopedic Surgery Of Spine
144	Physician/Orthopedic Surgery/Foot and Ankle Orthopedics
145	Physician/Orthopedic Surgery/Hand Surgery
147	Physician/Orthopedic Surgery/Orthopedic Trauma
148	Physician/Orthopedic Surgery/Sports Medicine
133	Physician/Otolaryngology/Facial Plastic Surgery
134	Physician/Otolaryngology/Otology & Neurology
136	Physician/Otolaryngology/Plastic Surgery Head and Neck
411	Physician/Radiology/Radiation Oncology
401	Radiation Therapist (Physician)
707	Podiatrist
605	Primary Care Nurse Practitioner - Entry

Table C.5—Continued

Code	PROVSPEC1
604	Primary Care Nurse Practitioner - Qualified
610	Clinical Nurse - Entry Level Nurse Practitioner
611	Psychiatric Nurse Practitioner
073	Psychiatric Resident/Intern With License
070	Psychiatrist
071	Child Psychiatrist
076	Physicians/Psychiatry and Neurology/Addictive/Psychiatry
072	Psychoanalyst
021	Pulmonary Diseases Physician
050	Pulmonary Diseases Physician, Pediatric
020	Rheumatologist
714	Social Work Case Manager
703	Social Worker (providing therapy)
710	Speech Therapist
110	Urologist
111	Urology Resident/Intern With License
SEPARATE VISIT IF ONLY SERVICE THAT DATE	
400	Radiologist
406	Radiology Resident/Intern With License
027	Nuclear Medicine Physician
403	Nuclear Medicine Radiologist
402	Neuro-Radiologist
404	Diagnostic Radiologist
405	Special Procedures Radiologist
DO NOT COUNT AS A VISIT	
303	Aerospace Medicine Resident/Intern Without License
606	Aerospace Nurse
701	Aerospace Physiologist
095	Anesthesiology Resident/Intern Without License
211	Biomedical Lab Science Officer

Table C.5—Continued

Code	PROVSPEC1
905	Cardiopulmonary Lab Technician
713	Chiropractor
607	Community Health Nurse
520	Corpsman, Independent Duty
900	Corpsman/Technician
902	Dental Assistant
812	Dental Officer General
813	Dental Officer Resident With License
814	Dental Staff Officer
082	Dermatologist Resident/Intern Without License
006	Emergency Physician Resident/Intern Without License
811	Endodontic Resident With License
007	Family Practice Physician Resident/Intern Without License
204	Forensic Pathologist
208	Histopathologist
010	Internal Medicine Resident/Intern Without License
202	Medical Chemist
025	Medical Geneticist
601	Mental Health Nurse
062	Neurologist Resident/Intern Without License
600	Nurse, General Duty
940	Nursing
122	Ophthalmology Resident/Intern Without License
830	Oral Surgery Resident Without License
807	Orthodontic Resident With License
833	Orthodontic Resident Without License
143	Orthopedic Resident/Intern Without License
760	Other Service Provider
132	Otorhinolaryngology Resident/Intern Without License
530	Pastoral Counselor

Table C.5—Continued

Code	PROVSPEC1
200	Pathologist
207	Pathology Resident/Intern With License
220	Pathology Resident/Intern Without License
039	Pediatric Resident/Intern Without License
750	Pharmacist, General Practice
227	Physician/Pathology/Hematology
117	Plastic Surgery Resident/Intern Without License
804	Prosthodontist
077	Psychiatric Resident/Intern Without License
408	Radiology Resident/Intern Without License
613	RN Case Manager
581	Student, Dental
580	Student, Medical
582	Student, Other (Non Medical, Non Dental Student)
113	Surgery Resident/Intern Without License
521	Technician, Independent Duty Medical
112	Urology Resident/Intern Without License
999	Unknown
	(blank)

Table C.6
PROVSPEC¹ (TED-NI) Specialty Categories

Code	PROVSPEC
03	Allergy
05	Anesthesiology
80	Anesthetist
64	Audiologists (Billing Independently)
06	Cardiovascular Disease
85	Certified Clinical Social Worker
92	Certified Nurse Midwife
16	Obstetrics/Gynecology
91	Clinical Psychiatric Nurse Specialist
62	Clinical Psychologist (Billing Independently)
07	Dermatology
47	Endocrinology
08	Family Practice
01	General Practice
02	General Surgery
38	Geriatrics
10	Gastroenterology
11	Internal Medicine
93	Mental Health Counselor
39	Nephrology
13	Neurology
14	Neurosurgery
90	Nurse Practitioner
44	Occupational Therapy (OTR)
ON	Oncology
18	Ophthalmology
98	Optometrist

¹ Specialties grouped together with encounters on the same date were considered the same specialty visit.

Table C.6—Continued

Code	PROVSPEC
19	Oral Surgery (Dentists only)
20	Orthopedic Surgery
04	Otology, Laryngology, Rhinology
37	Pediatrics
25	Physical Medicine and Rehabilitation
65	Physical Therapist (Independent Practice)
84	Physician's Assistant
24	Plastic Surgery
48	Podiatry - Surgical Chiropody
50	Proctology and Rectal Surgery
26	Psychiatry
29	Pulmonary Diseases
45	Speech Pathologist/Speech Therapist
33	Thoracic Surgery
34	Urology
	SEPARATE VISIT IF ONLY SERVICE THAT DATE
30	Radiology
36	Nuclear Medicine
	DO NOT COUNT AS A VISIT
57	Certified Prosthetist - Orthotist
35	Chiropractor, licensed
70	Clinic or other group practice
DN	Dentist (all Dental Specialties except Oral Surgery)
HH	Home Health Aide/Homemaker
HB	Hospital Outpatient Birthing Room
69	Independent Laboratory (Billing Independently)
51	Medical Supply Co
49	Miscellaneous
43	Nurses (LPN)
42	Nurses (RN)

Table C.6—Continued

Code	PROVSPEC
22	Pathology
88	Pharmacy
60	Public Health or Welfare Agencies

References

- Agency for Healthcare Research and Quality, “Uses of Quality Measures,” Washington, D.C., U.S. Department of Health and Human Services, undated. As of October 5, 2015:
<http://www.qualitymeasures.ahrq.gov/selecting-and-using/using.aspx>
- American Psychiatric Association, *Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Posttraumatic Stress Disorder*, Washington, D.C.: American Psychiatric Association, 2004.
- , *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, Arlington, Va.: American Psychiatric Association, 2013.
- Benedek, David M., Matthew J. Friedman, Douglas Zatzick, and Robert J. Ursano, *Guideline Watch (March 2009): Practice Guideline for the Treatment of Patients with Acute Stress Disorder and Post Traumatic Stress Disorder*, Washington, D.C.: American Psychiatric Association, 2009.
- Benjamini, Yoav, and Yosef Hochberg, “Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing,” *Journal of the Royal Statistical Society, Series B* 57, Volume 1, 1995, pp. 289–300.
- Blakeley, Katherine, and Don J. Jansen, *Post-Traumatic Stress Disorder and Other Mental Health Problems in the Military: Oversight Issues for Congress*, Congressional Research Service, 7-5700, 2013. As of October 5, 2015:
<https://www.fas.org/sgp/crs/natsec/R43175.pdf>
- Bower, Peter, Simon Gilbody, David Richards, Janine Fletcher, and Alex Sutton, “Collaborative Care for Depression in Primary Care—Making Sense of a Complex Intervention: Systematic Review and Meta-Regression,” *British Journal of Psychiatry: The Journal of Mental Science*, Vol. 189, No. 6, 2006, pp. 484–493. As of October 5, 2015:
http://www.researchgate.net/publication/6659955_Collaborative_Care_for_Depression_in_Primary_Care_Making_Sense_of_a_Complex_Intervention_Systematic_Review_and_Meta-Regression
- Boyce, Maria B., and John P. Browne, “Does Providing Feedback on Patient-Reported Outcomes to Healthcare Professionals Result in Better Outcomes for Patients? A Systematic Review,” *Quality of Life Research*, Vol. 22, No. 9, 2013, pp. 2265–2278.
- Boyer, Carol A., Donna D. McAlpine, Kathleen J. Pottick, and Mark Olfson, “Identifying Risk Factors and Key Strategies in Linkage to Outpatient Psychiatric Care,” *American Journal of Psychiatry*, Vol. 157, No. 10, 2000, pp. 1592–1598.

Brady, Kathleen, Teri Pearlstein, Gregory M. Asnis, Dewleen Baker, Barbara Rothbaum, Carolyn R. Sikes, and Gail M. Farfel, "Efficacy and Safety of Sertraline Treatment of Posttraumatic Stress Disorder: A Randomized Controlled Trial," *JAMA: The Journal of the American Medical Association*, Vol. 283, No. 14, 2000, pp. 1837–1844. As of October 5, 2015:
<http://jama.jamanetwork.com/article.aspx?articleid=192575>

Burnett-Zeigler, Inger E., Paul Pfeiffer, Kara Zivin, Joseph E. Glass, Mark A. Ilgen, Heather A. Flynn, Karen Austin, and Stephen T. Chermack, "Psychotherapy Utilization for Acute Depression Within the Veterans Affairs Health Care System," *Psychological Services*, Vol. 9, No. 4, November 2012, pp. 325–335. As of October 5, 2015:
<http://www.ncbi.nlm.nih.gov/pubmed/22564035>

Chen, Shih-Yin, Richard A. Hansen, Joel F. Farley, Bradley N. Gaynes, Joseph P. Morrissey, and Matthew L. Maciejewski, "Follow-Up Visits by Provider Specialty for Patients with Major Depressive Disorder Initiating Antidepressant Treatment," *Psychiatric Services*, Vol. 61, No. 1, January 2010, pp. 81–85. As of October 5, 2015:
<http://www.ncbi.nlm.nih.gov/pubmed/20044424>

Davidson, Jonathan, David Baldwin, Dan J. Stein, Enrique Kuper, Isma Benattia, Saeed Ahmed, Ron Pedersen, and Jeff Musgnung, "Treatment of Posttraumatic Stress Disorder with Venlafaxine Extended Release: A Six-Month Randomized Controlled Trial," *Archives of General Psychiatry*, Vol. 63, No. 10, 2006, pp. 1158–1165. As of October 5, 2015:
<http://archpsyc.jamanetwork.com/article.aspx?articleid=209852>

Davidson, Jonathan R., Barbara O. Rothbaum, Bessel A. van der Kolk, Carolyn R. Sikes, and Gail M. Farfel, "Multicenter, Double-Blind Comparison of Sertraline and Placebo in the Treatment of Posttraumatic Stress Disorder," *Archives of General Psychiatry*, Vol. 58, No. 5, 2001, pp. 485–492. As of October 5, 2015:
<http://archpsyc.jamanetwork.com/article.aspx?articleid=481769>

Davidson, Jonathan, Barbara O. Rothbaum, Phebe Tucker, Gregory Asnis, Isma Benattia, and Jeff J. Musgnung, "Venlafaxine Extended Release in Posttraumatic Stress Disorder: A Sertraline- and Placebo-Controlled Study," *Journal of Clinical Psychopharmacology*, Vol. 26, No. 3, 2006, pp. 259–267. As of October 5, 2015:
http://www.researchgate.net/publication/7078517_Venlafaxine_Extended_Release_in_Posttraumatic_Stress_Disorder

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, *2011 Annual Report*, 2011. As of November 2, 2015:
http://www.dcoe.mil/About_DCoE/Annual_Reports.aspx

Department of the Army, "OTSG/MEDCOM Policy Memo 11-061: MEDCOM Policy for Procedures Following Missed Behavioral Health (BH) Appointments," 2011.

———, "OTSG/MEDCOM Policy Memo 14-019: Inpatient and Emergency Department (ED) Aftercare," 2014.

Department of Defense, *Military Treatment Facility Mental Health Clinical Outcomes Guidance Memorandum*, Washington, D.C., Affairs, Manpower and Reserve, Assistant Secretary of Defense, 2013.

———, *Evaluation of the TRICARE Program, Fiscal Year 2014 Report to Congress*, 2014a. As of October 5, 2015:
<http://health.mil/Reference-Center/Reports/2014/02/25/Evaluation-of-the-TRICARE-Program>

———, *Military Health System Review: Final Report to the Secretary of Defense*, 2014b. As of October 5, 2015:
<http://www.health.mil/Military-Health-Topics/Access-Cost-Quality-and-Safety/MHS-Review>

Department of Defense, Deployment Health Clinical Center and Post-Deployment Health Guidance Expert Panel, *Recommendations for Monitoring Metrics: DoD/VA Practice Guideline for Post-Deployment Health Evaluation and Management*, 2001. As of October 5, 2015:
http://www.pdhealth.mil/guidelines/downloads/view/3/2_recommendations_for_metrics.pdf

DeRubeis, Robert J., Steven D. Hollon, Jay D. Amsterdam, Richard C. Shelton, Paula R. Young, Ronald M. Salomon, John P. O'Reardon, Margaret L. Lovett, Madeline M. Gladis, Laurel L. Brown, and Robert Gallop, "Cognitive Therapy vs Medications in the Treatment of Moderate to Severe Depression," *Archives of General Psychiatry*, Vol. 62, No. 4, 2005, pp. 409–416. As of October 5, 2015:
<http://archpsyc.jamanetwork.com/article.aspx?articleid=208460>

Dimidjian, Sona, Steven D. Hollon, Keith S. Dobson, Karen B. Schmaling, Robert J. Kohlenberg, Michael E. Addis, Robert Gallop, Joseph B. McGlinchey, David K. Markley, Jackie K. Gollan, David C. Atkins, David L. Dunner, and Neil S. Jacobson, "Randomized Trial of Behavioral Activation, Cognitive Therapy, and Antidepressant Medication in the Acute Treatment of Adults with Major Depression," *Journal of Consulting and Clinical Psychology*, Vol. 74, No. 4, 2006, pp. 658–670. As of October 5, 2015:
<http://www.scholars.northwestern.edu/pubDetail.asp?t=pm&cid=33746888664&>

Dixon, Lisa, Richard Goldberg, Virginia Iannone, Alicia Lucksted, Clayton Brown, Julie Kreyenbuhl, Lijuan Fang, and Wendy Potts, "Use of a Critical Time Intervention to Promote Continuity of Care After Psychiatric Inpatient Hospitalization," *Psychiatric Services*, Vol. 60, No. 4, 2009, pp. 451–458.

Donabedian, Avedis, *An Introduction to Quality Assurance in Health Care*, New York: Oxford University Press, 2003.

Farmer, Carrie M., Katherine E. Watkins, Brad Smith, Susan M. Paddock, Abigail Woodroffe, Jacob Solomon, Melony E. Sorbero, Kimberly A. Hepner, Lanna Forrest, Lisa R. Shugarman, Cathy Call, and Harold A. Pincus, *Program Evaluation of VHA Mental Health Services: Medical Record Review Report*, Alexandria, Va.: Altarum Institute and RAND–University of Pittsburgh Health Institute, 2010.

Fischer, Ellen P., John F. McCarthy, Rosalinda V. Ignacio, Frederic C. Blow, Kristen L. Barry, Teresa J. Hudson, Richard R. Owen, Jr., and Marcia Valenstein, "Longitudinal Patterns of Health System Retention Among Veterans with Schizophrenia or Bipolar Disorder," *Community Mental Health Journal*, Vol. 44, No. 5, October 2008, pp. 321–330. As of October 5, 2015:
<http://rd.springer.com/article/10.1007%2Fs10597-008-9133-z>

Foa, E. B., J. R. T. Davidson, and A. Frances, "The Expert Consensus Guideline Series: Treatment of Posttraumatic Stress Disorder," *Journal of Clinical Psychiatry*, Vol. 60, Suppl. 16, 1999, pp. 6–76.

Foa, E. B., T. M. Keane, and M. J. Friedman, *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies*, New York: Guilford, 1999.

Fournier, Jay C., Robert J. DeRubeis, Steven D. Hollon, Sona Dimidjian, Jay D. Amsterdam, Richard C. Shelton, and Jan Fawcett, "Antidepressant Drug Effects and Depression Severity: A Patient-Level Meta-Analysis," *JAMA: The Journal of the American Medical Association*, Vol. 303, No. 1, January 2010, pp. 47–53. As of October 5, 2015:
<http://jama.jamanetwork.com/article.aspx?articleid=185157>

Gartlehner, G., R. A. Hansen, P. Thieda, A. M. DeVeaugh-Geiss, B. N. Gaynes, E. E. Krebs, L. J. Lux, L. C. Morgan, J. A. Shumate, L. G. Monroe, and K. N. Lohr, *Comparative Effectiveness of Second-Generation Antidepressants in the Pharmacologic Treatment of Adult Depression: Comparative Effectiveness Review No. 7*, Rockville, Md.: Agency for Healthcare Research and Quality, January 2007.

Gilbody, Simon, Peter Bower, Janine Fletcher, David Richards, and Alex J. Sutton, "Collaborative Care for Depression: A Cumulative Meta-Analysis and Review of Longer-Term Outcomes," *Archives of Internal Medicine*, Vol. 166, No. 21, 2006, pp. 2314–2321. As of October 5, 2015: <http://archinte.jamanetwork.com/article.aspx?articleid=411326>

Glenberg, Alan J., Marlene P. Freeman, John C. Markowitz, Jerrold F. Rosenbaum, Michael E. Thase, Madhukar H. Trivedi, and Richard S. Van Rhoads, *Practice Guideline for the Treatment of Patients with Major Depressive Disorder*, Arlington, Va.: American Psychiatric Association, 2010.

Harding, Kelli Jane, A. John Rush, Melissa Arbuckle, Madhukar H. Trivedi, and Harold Alan Pincus, "Measurement-Based Care in Psychiatric Practice: A Policy Framework for Implementation," *Journal of Clinical Psychiatry*, Vol. 72, No. 8, 2011, pp. 1136–1143.

Haskell, S. G., K. Mattocks, J. L. Goulet, E. E. Krebs, M. Skanderson, D. Leslie, A. C. Justice, E. M. Yano, and C. Brandt, "The Burden of Illness in the First Year Home: Do Male and Female VA Users Differ in Health Conditions and Healthcare Utilization?" *Women's Health Issues*, Vol. 21, No. 1, January–February 2011, pp. 92–97. As of October 5, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/21185994>

Health Affairs, "HA Policy 02-016: Military Health System Definitions of Quality in Health Care," May 2002. As of October 5, 2015: <http://www.health.mil/Policies?&qquery=02-016>

Helmer, D. A., H. K. Chandler, K. S. Quigley, M. Blatt, R. Teichman, and G. Lange, "Chronic Widespread Pain, Mental Health, and Physical Role Function in OEF/OIF Veterans," *Pain Medicine*, Vol. 10, No. 7, October 2009, pp. 1174–1182. As of October 5, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/19818029>

Hepner, K. A., C. P. Roth, C. Farris, E. M. Sloss, G. Martsolf, H. Pincus, K. E. Watkins, C. Epley, D. Mandel, S. Hosek, and C. M. Farmer, *Assessing the Quality of Care for Psychological Health Conditions in the Military Health System: Candidate Measures for PTSD and Major Depression*, Santa Monica, Calif.: RAND Corporation, RR-464-OSD, 2015. As of October 5, 2015: http://www.rand.org/pubs/research_reports/RR464.html

Hoge, Charles W., Jennifer L. Auchterlonie, and Charles S. Milliken, "Mental Health Problems, Use of Mental Health Services, and Attrition from Military Service After Returning from Deployment to Iraq or Afghanistan," *Journal of the American Medical Association*, Vol. 295, No. 9, March 1, 2006, pp. 1023–1032. As of October 5, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/16507803>

Hoge, Charles W., Sasha H. Grossman, Jennifer L. Auchterlonie, Lyndon A. Riviere, Charles S. Milliken, and Joshua E. Wilk, "PTSD Treatment for Soldiers After Combat Deployment: Low Utilization of Mental Health Care and Reasons for Dropout," *Psychiatric Services*, Vol. 65, No. 8, August 2014, pp. 997–1004. As of October 5, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/24788253>

Horvitz-Lennon, Marcela, Katherine E. Watkins, Harold Alan Pincus, Lisa R. Shugarman, Brad Smith, Teryn Mattox, and Thomas E. Mannle, *Veterans Health Administration Mental Health Program Evaluation Technical Manual*, Santa Monica, Calif.: RAND Corporation, WR-682-VHA, 2009. As of October 6, 2015: http://www.rand.org/pubs/working_papers/WR682

Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the 21st Century*, Washington, D.C.: The National Academies Press, 2001.

———, *Treatment of Posttraumatic Stress Disorder: An Assessment of the Evidence*, Washington, D.C.: The National Academies Press, 2008.

———, *Provision of Mental Health Counseling Services Under TRICARE*, Washington, D.C.: The National Academies Press, 2010.

———, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, Washington, D.C.: The National Academies Press, 2012. As of October 6, 2015: http://www.nap.edu/openbook.php?record_id=13364

———, *Returning Home from Iraq and Afghanistan: Readjustment Needs of Veterans, Service Members, and Their Families*, Washington, D.C.: The National Academies Press, 2013.

———, *Preventing Psychological Disorders in Service Members and Their Families: An Assessment of Programs*, Washington, D.C.: The National Academies Press, 2014a.

———, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Final Assessment*, Washington, D.C.: The National Academies Press, 2014b.

Ipsen, Jonathan C., and Dan J. Stein, “Evidence-Based Pharmacotherapy of Post-Traumatic Stress Disorder (PTSD),” *The International Journal of Neuropsychopharmacology/Official Scientific Journal of the Collegium Internationale Neuropsychopharmacologicum (CINP)*, Vol. 15, No. 6, 2012, pp. 825–840. As of October 6, 2015: <http://ijnp.oxfordjournals.org/content/15/6/825>

Jonas, Daniel E., Karen Cusack, Catherine A. Forneris, Tania M. Wilkins, Jeffrey Sonis, Jennifer Cook Middleton, Cynthia Feltner, Dane Meredith, Jamie Cavanaugh, Kimberly A. Brownley, Kristine Rae Olmsted, Amy Greenblatt, Amy Weil, and Bradley N. Gaynes, “Psychological and Pharmacological Treatments for Adults with Posttraumatic Stress Disorder (PTSD),” Agency for Healthcare Research and Quality, 2013. As of October 6, 2015: <http://effectivehealthcare.ahrq.gov/ehc/products/347/1435/PTSD-adult-treatment-report-130403.pdf>

Kolkow, Tonya T., James L. Spira, Jennifer S. Morse, and Thomas A. Grieger, “Post-Traumatic Stress Disorder and Depression in Health Care Providers Returning from Deployment to Iraq and Afghanistan,” *Military Medicine*, Vol. 172, No. 5, May 2007, pp. 451–455. As of October 6, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/17521088>

Kreyenbuhl, Julie, Ilana R. Nossel, and Lisa B. Dixon, “Disengagement from Mental Health Treatment Among Individuals with Schizophrenia and Strategies for Facilitating Connections to Care: A Review of the Literature,” *Schizophrenia Bulletin*, Vol. 35, No. 4, July 2009, pp. 696–703. As of October 6, 2015: <http://schizophreniabulletin.oxfordjournals.org/content/35/4/696.abstract>

Lapierre, Coady B., Andria F. Schwegler, and Bill J. Labauve, “Posttraumatic Stress and Depression Symptoms in Soldiers Returning from Combat Operations in Iraq and Afghanistan,” *Journal of Traumatic Stress*, Vol. 20, No. 6, December 2007, pp. 933–943. As of October 6, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/18157882>

Luppa, Melanie, Sven Heinrich, Matthias C. Angermeyer, Hans-Helmut König, and Steffi G. Riedel-Heller, “Cost-of-Illness Studies of Depression: A Systematic Review,” *Journal of Affective Disorders*, Vol. 98, No. 1, 2007, pp. 29–43.

McLean, Peter D., and A. Ralph Hakstian, “Clinical Depression: Comparative Efficacy of Outpatient Treatments,” *Journal of Consulting and Clinical Psychology*, Vol. 47, No. 5, October 1979, pp. 818–836. As of October 6, 2015: <http://www.ncbi.nlm.nih.gov/pubmed/389965>

Melartin, Tarja K., Heikki J. Rytsälä, Ulla S. Leskelä, Paula S. Lestelä-Mielonen, T. Petteri Sokero, and Erkki T. Isometsä, “Continuity is the Main Challenge in Treating Major Depressive Disorder in Psychiatric Care,” *The Journal of Clinical Psychiatry*, Vol. 66, No. 2, 2005, pp. 220–227. As of October 6, 2015:

http://www.researchgate.net/publication/8027978_Continuity_Is_the_Main_Challenge_in_Treating_Major_Depressive_Disorder_in_Psychiatric_Care

MHAT-II, “Mental Health Advisory Team (MHAT-II): Operation Iraqi Freedom (OIF-11),” Washington, D.C., Office of the Surgeon Multinational Force–Iraq, 2005. As of October 6, 2015: <http://armymedicine.mil/Documents/MHAT-Team-II-OIF-II-REPORT.pdf>

Mitchell, Alex J., and Thomas Selmes, “Why Don’t Patients Attend Their Appointments? Maintaining Engagement with Psychiatric Services,” *Advances in Psychiatric Treatment*, Vol. 13, No. 6, October 2007, pp. 423–434. As of October 6, 2015:

<http://apt.rcpsych.org/content/13/6/423.abstract>

Moncrieff, Joanna, Simon Wessely, and Rebecca Hardy, “Active Placebos Versus Antidepressants for Depression,” *The Cochrane Database of Systematic Reviews*, No. 1, 2004, p. CD003012. As of October 6, 2015:

<http://www.pdq-evidence.org/documents/22c15b56e93d2711392cb2b93525a946e73485c7/>

National Committee for Quality Assurance, “HEDIS 2013,” 2013a. As of October 6, 2015:

<http://www.ncqa.org/HEDISQualityMeasurement/HEDISMeasures/HEDIS2013.aspx>

———, “Improving Quality and Patient Experience: The State of Health Care Quality 2013,” 2013b. As of October 6, 2015:

http://www.ncqa.org/Portals/0/Newsroom/SOHC/2013/SOHC-web_version_report.pdf

———, “State of Health Care Quality 2014,” 2014. As of November 2, 2015:

<http://www.ncqa.org/Portals/0/Newsroom/2014/SOHC-web.pdf>

National Quality Forum, “Quality Positioning System,” 2013a. As of October 6, 2015:

<http://www.qualityforum.org/QPS/QPSTool.aspx>

———, “Who We Are,” 2013b. As of October 6, 2015:

http://www.qualityforum.org/story/About_Us.aspx

———, “Behavioral Health Endorsement Maintenance 2014–Phase II. NQF #0105—Antidepressant Medication Management, Measure Submission and Evaluation Worksheet,” 2014. As of October 6, 2015:

<http://www.qualityforum.org/Publications/2014/05/>

[Behavioral_Health_Endorsement_Maintenance_2014_-_Phase_II.aspx](http://www.qualityforum.org/Publications/2014/05/Behavioral_Health_Endorsement_Maintenance_2014_-_Phase_II.aspx)

Obama, Barack, *Press Release: Executive Order—Improving Access to Mental Health Services for Veterans, Service Members, and Military Families*, Washington, D.C.: The White House, Office of the Press Secretary, August 31, 2012. As of October 6, 2015:

<http://www.whitehouse.gov/the-press-office/2012/08/31/>

[executive-order-improving-access-mental-health-services-veterans-service](http://www.whitehouse.gov/the-press-office/2012/08/31/executive-order-improving-access-mental-health-services-veterans-service)

Pfeiffer, Paul N., Dara Ganoczy, Nicholas W. Bowersox, John F. McCarthy, Frederic C. Blow, and Marcia Valenstein, “Depression Care Following Psychiatric Hospitalization in the Veterans Health Administration,” *The American Journal of Managed Care*, Vol. 17, No. 9, September 2011, pp. e358–364. As of October 6, 2015:

<http://www.ncbi.nlm.nih.gov/pubmed/21902443>

- Quitkin, Frederic M., Eva Petkova, Patrick J. McGrath, Bonnie Taylor, Charles Beasley, Jonathan Stewart, Jay Amsterdam, Maurizio Fava, Jerrold Rosenbaum, Frederick Reimherr, Jan Fawcett, Ying Chen, and Donald Klein, "When Should a Trial of Fluoxetine for Major Depression Be Declared Failed?" *The American Journal of Psychiatry*, Vol. 160, No. 4, 2003, pp. 734–740. As of October 6, 2015:
<http://ajp.psychiatryonline.org/doi/pdf/10.1176/appi.ajp.160.4.734>
- Ramchand, R., R. Rudavsky, S. Grant, T. Tanielian, and L. Jaycox, "Prevalence of, Risk Factors for, and Consequences of Posttraumatic Stress Disorder and Other Mental Health Problems in Military Populations Deployed to Iraq and Afghanistan," *Current Psychiatry Reports*, Vol. 17, No. 5, May 2015, p. 37. As of October 6, 2015:
<http://www.ncbi.nlm.nih.gov/pubmed/25876141>
- Schnurr, Paula P., Matthew J. Friedman, Thomas E. Oxman, Allen J. Dietrich, Mark W. Smith, Brian Shiner, Elizabeth Forshay, Jiang Gui, and Veronica Thurston, "RESPECT-PTSD: Re-engineering Systems for the Primary Care Treatment of PTSD, a Randomized Controlled Trial," *Journal of General Internal Medicine*, Vol. 28, No. 1, January 2013, pp. 32–40. As of October 6, 2015:
<http://www.ncbi.nlm.nih.gov/pubmed/22865017>
- Shin, Hana J., Mark A. Greenbaum, Shaili Jain, and Craig S. Rosen, "Associations of Psychotherapy Dose and SSRI or SNRI Refills with Mental Health Outcomes Among Veterans with PTSD," *Psychiatric Services*, Vol. 65, No. 10, October 2014, pp. 1244–1248. As of October 6, 2015:
<http://www.ncbi.nlm.nih.gov/pubmed/24981643>
- Simon, Gregory E., "Evidence Review: Efficacy and Effectiveness of Antidepressant Treatment in Primary Care," *General Hospital Psychiatry*, Vol. 24, No. 4, 2002, pp. 213–224. As of October 6, 2015:
http://www.researchgate.net/publication/11275104_Evidence_Review._Efficacy_and_effectiveness_of_antidepressant_therapy_in_primary_care
- Sorbero, Melony E., Thomas E. Mannle, Brad Smith, Katherine E. Watkins, Abigail Woodroffe, Susan M. Paddock, Lisa R. Shugarman, E. Dela Cruz, Jacob Solomon, Q. Burkhart, Teryn Mattox, and Harold A. Pincus, *Program Evaluation of VHA Mental Health Services: Administrative Data Report (Contract# GS 10 F-0261K)*, Alexandria, Va.: Altarum Institute and RAND–University of Pittsburgh Health Institute, 2010.
- Spoont, Michele, Maureen Murdoch, James Hodges, and Sean Nugent, "Treatment Receipt by Veterans After a PTSD Diagnosis in PTSD, Mental Health, or General Medical Clinics," *Psychiatric Services*, Vol. 61, No. 1, 2010, pp. 58–63.
- Stein, D. J., J. C. Ipser, and S. Seedat, "Pharmacotherapy for Post Traumatic Stress Disorder (PTSD)," *Cochrane Database of Systematic Reviews 2006*, No. 1, 2009.
- Tanielian, Terri L., and Lisa Jaycox, eds., *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*, Santa Monica, Calif.: RAND Corporation, MG-720-CCF, 2008. As of October 6, 2015:
<http://www.rand.org/pubs/monographs/MG720.html>
- Trangle, M., B. Dieperink, T. Gabert, B. Haight, B. Lindvall, J. Mitchell, H. Novak, D. Rich, D. Rossmiller, L. Setter-lund, and K. Somers, "Major Depression in Adults in Primary Care," Institute for Clinical Systems Improvement, May 2012.
- U.S. Census Bureau, "Table 508. Military and Civilian Personnel in Installations: 2009," 2012. As of November 2, 2015:
<https://www.census.gov/prod/2011pubs/12statab/defense.pdf?cssp=SERP>

U.S. Department of the Army, "Behavioral Health Data Portal," undated. As of October 6, 2015: <http://armymedicine.mil/Pages/BHDP.aspx>

U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, *2013 National Healthcare Quality Report: AHRQ Publication No. 14-0005*, Rockville, Md.: Agency for Healthcare Research and Quality, 2014.

U.S. Department of Veterans Affairs and U.S. Department of Defense, "VA/DoD Clinical Practice Guideline for Management of Major Depressive Disorder, Version 2.0," 2009. As of October 5, 2015: http://www.healthquality.va.gov/mdd/MDD_FULLL_3c1.pdf

———, "VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress Disorder, Version 2.0," 2010. As of October 5, 2015: <http://www.healthquality.va.gov/PTSD-full-2010c.pdf>

U.S. Government Accountability Office, *VA Health Care Improvements Needed in Monitoring Antidepressant Use in Major Depressive Disorder and in Increasing Accuracy of Suicide Data*, Washington, D.C., 2014. As of October 6, 2015: <http://www.gao.gov/assets/670/666842.pdf>

U.S. Secretary of Defense, "Military Health System Action Plan for Access, Quality of Care, and Patient Safety," 2014. As of October 6, 2015: <https://assets.documentcloud.org/documents/1307888/directives-from-defense-secretary-chuck-hagel.pdf>

Watkins, Katherine E., Harold Alan Pincus, Susan Paddock, Brad Smith, Abigail Woodroffe, Carrie Farmer, Melony E. Sorbero, Marcela Horvitz-Lennon, Thomas Mannle, and Kimberly A. Hepner, "Care for Veterans with Mental and Substance Use Disorders: Good Performance, but Room to Improve on Many Measures," *Health Affairs*, Vol. 30, No. 11, 2011, pp. 2194–2203.

Williams, John W., Jr., Martha Gerrity, Tracey Holsinger, Steve Dobscha, Bradley Gaynes, and Allen Dietrich, "Systematic Review of Multifaceted Interventions to Improve Depression Care," *General Hospital Psychiatry*, Vol. 29, No. 2, 2007, pp. 91–116. As of October 6, 2015: [http://ohsu.pure.elsevier.com/en/publications/systematic-review-of-multifaceted-interventions-to-improve-depression-care\(7cd4278b-a32a-40a3-b823-3c10de7c5b0f\).html](http://ohsu.pure.elsevier.com/en/publications/systematic-review-of-multifaceted-interventions-to-improve-depression-care(7cd4278b-a32a-40a3-b823-3c10de7c5b0f).html)

The U.S. Department of Defense (DoD) strives to maintain a physically and psychologically healthy, mission-ready force, and the care provided by the Military Health System (MHS) is critical to meeting this goal. Given the rates of posttraumatic stress disorder (PTSD) and depression among U.S. service members, attention has been directed to ensuring the quality and availability of programs and services targeting these and other psychological health (PH) conditions. Understanding the current quality of care for PTSD and depression is an important step toward improving care across the MHS. To help determine whether service members with PTSD or depression are receiving evidence-based care and whether there are disparities in care quality by branch of service, geographic region, and service member characteristics (e.g., gender, age, pay grade, race/ethnicity, deployment history), DoD's Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) asked the RAND Corporation to conduct a review of the administrative data of service members diagnosed with PTSD or depression and to recommend areas on which the MHS could focus its efforts to continuously improve the quality of care provided to all service members. This report characterizes care for service members seen by MHS for diagnoses of PTSD and/or depression and finds that while the MHS performs well in ensuring outpatient follow-up following psychiatric hospitalization, providing sufficient psychotherapy and medication management needs to be improved. Further, quality of care for PTSD and depression varied by service branch, TRICARE region, and service member characteristics, suggesting the need to ensure that all service members receive high-quality care.



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