Veterans Health Administration Mental Health Program Evaluation

Capstone Report

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Program Evaluation of VHA Mental Health Services
Capstone Report

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PREFACE

U.S. policymakers and medical professionals increasingly recognize that quality mental health care is a key contributor to better, healthier lives for veterans with mental illness, and that setting measurable goals, promoting evidence-based processes of care, and monitoring performance plays a vital role in improving healthcare delivery and, ultimately, patient outcomes. In 2004, responding to the U.S. government's New Freedom Commission on Mental Health (2002), the U.S Department of Veterans Affairs (VA) finalized a 5-year Mental Health Strategic Plan (MHSP), which emphasizes mental health as an important part of veterans' overall health. Major goals contained in the MHSP include raising awareness of the importance of mental health, eliminating disparities in services, increasing early mental health screening, assessments, and referrals to care, and providing high-quality, evidence-based care.

In 2006, to assess progress toward MHSP goals, the VA commissioned RAND and the Altarum Institute to conduct an independent evaluation of the quality of the VA's mental health care system. The request was pursuant to the Government Performance and Results Act, which requires executive branch agencies to evaluate their programs, and was in keeping with the VA's commitment to ensuring to providing the best care to U.S. veterans.

The RAND/Altarum team conducted the study between August 2006 and November 2010. The evaluation represents the most comprehensive evaluation of a mental health care system ever undertaken. The evaluation focused on the quality of care delivered to veterans with one or more of five mental health or substance abuse diagnoses: (1) schizophrenia; (2) bipolar disorder; (3) posttraumatic stress disorder (PTSD); (4) major depressive disorder; (5) substance use disorder (SUD).

The evaluation's results should be of interest to policymakers in the areas of national defense and veterans' affairs, to mental health professionals, and to veterans and other audiences interested in veterans' health issues.

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A profile of RAND Health, abstracts of its publications, and ordering information can be found at www.rand.org/health.

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ABBREVIATIONS

AOD	alcohol or other drug dependence
BMI	body mass index
BP	bipolar I disorder
CAPS	Clinician-Administered PTSD Scales
CBOC	community-based outpatient clinic
CBT	cognitive behavioral therapy
CERT	Center for Education and Research on Therapeutics, Rutgers University
CM	contingency management, therapy
COD	co-occurring [mental health and substance use] disorders
CPT	Current Procedural Terminology
CWT	compensated work therapy
DHHS	Department of Health and Human Services
DISCH NDE	Discharge National Data Extract
DoD	Department of Defense
DSM	Diagnostic and Statistical Manual of Mental Disorders
DSS	Decision Support System, VHA
E&M	evaluation and management
EBP	evidence-based practice
ECHO	Evidence of Care and Health Outcomes survey
ESS	effective sample size
FY	fiscal year
GAF	Global Assessment of Functioning
GLMM	generalized linear mixed model
HEDIS	Healthcare Effectiveness Data and Information Set
HIV	human immunodeficiency virus
ICD-9-CM	International Classification of Diseases, 9th Revision, Clinical Modification
IOM	Institute of Medicine
IT	information technology
MCS	Mental Component Summary, VR-12
MDD	major depressive disorder
MH	mental health
MHEI	Mental Health Enhancement Initiatives
MHICM	mental health intensive case management
MHSP	Mental Health Strategic Plan
NCQA	National Committee for Quality Assurance
NDC	National Drug Code
NPCD	National Patient Care Database
NQF	National Quality Forum
NSDUH	National Survey on Drug Use and Health
NTE	new treatment episode
OEF/OIF	Operation Enduring Freedom/Operation Iraqi Freedom
OPC	outpatient care file
OUT NDE	Outpatient National Data Extract

PABAK	prevalence-adjusted bias-adjusted kappa statistic
PCS	Physical Component Summary, VR-12
PFSA	parent facility service area
PTF	patient treatment file
PTSD	posttraumatic stress disorder
RCT	randomized controlled trial
RPT	relapse prevention therapy
SAMHSA	Substance Abuse and Mental Health Services Administration
SCHIZ	schizophrenia
SD	Standard deviation
SHEP	Survey of Healthcare Experiences of Patients
SSRI	selective serotonin reuptake inhibitor
SUD	substance use disorder
USPHSTF	United States Public Health System Task Force
VA	Department of Veterans Affairs
VAMC	Veterans Administration medical center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VR-12	Veterans RAND 12 Item Health Survey
VR-36	Veterans RAND 36 Item Health Survey

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CHAPTER 1. INTRODUCTION

BACKGROUND: QUALITY IMPROVEMENT IN MENTAL HEALTH CARE

The Institute of Medicine's (IOM's) quality chasm report underscored the sizable gap between the best health-care practices informed by scientific knowledge and the quality of care that most Americans actually receive (Institute of Medicine, 2001). Deficiencies in the evidence base and the underdevelopment of the infrastructure to measure and report quality contribute to a range of problems, including variability in treatment practices, underuse of evidence-based practices (EBPs), overuse of low-value treatments, and misuse of interventions.

Nowhere is the need for quality improvement more urgent than in mental health and substance use care. Mental health and substance use disorders contribute significantly to the total global burden of illness (Murray and Lopez, 1996). A recent report conservatively estimated the annual global economic burden of serious mental illness to be $317.6 billion (Insel, 2008). This figure excludes the potentially vast societal costs that accompany mental illness and substance use disorders, such as incarcerations, homelessness, comorbid conditions, and lost productivity. Mental illness remains a leading cause of death and disability in the United States (Kessler et al., 2008).

The ability to measure quality of care stands at the center of quality-improvement efforts and forms the basis for establishing accountability for providing good care (Pincus et al., 2007). This realization has motivated national, state, and provincial governments, as well as regulatory and other organizations around the world, to develop and implement quality measures.

Yet mental health care poses unique and difficult barriers to quality measurement. These barriers include gaps in the evidence base about which treatments are effective; infrastructure and policy barriers intrinsic to mental health (such as less penetration of health information technology and frequent separation of mental and general health care in the organization and financing of care); and underdevelopment of the infrastructure needed for measuring and reporting quality (Herbstman and Pincus, 2009; Institute of Medicine, 2006a; Kilbourne, Keyser, and Pincus, 2010). Key infrastructure deficits include few or underdeveloped data collection systems to monitor and track care; insufficient attention to developing and validating mental health performance measures; and infrequent use of outcome measurement in routine clinical practice (Institute of Medicine, 2006a, 2006b; Keyser, Houtsinger, Watkins, and Pincus, 2008).

In the past few years, multiple organizations have sought to evaluate and monitor mental health care in the United States. A recent review of 36 initiatives by federal and state governments, health plans, and nongovernmental and professional organizations revealed that the overall effort has been hindered by the absence of a group to oversee and coordinate the process (Herbstman and Pincus, 2009). The review also found that significant gaps exist in measure development and that serious weaknesses in data systems diminish the usability of the findings for purposes of quality reporting. For example, of approximately 650 quality measures approved by the National Quality Forum (NQF), only 16 relate specifically to mental and substance use care (National Quality Forum, 2010). Further, many of these measures were not applicable in the present evaluation.[1]

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[1] For example, NQF# 0008 (Experience of Care and Health Outcomes (ECHO) survey, behavioral health and managed care versions) was incorporated into the veteran survey; NQF # 0328 (inpatient hospital average length of stay) was incorporated into cost and utilization analyses; NQF # 0576 (follow-up after hospitalization for mental illness) was used as an outcome measure in Chapter 7; NQF # 0105 (new episode of depression: (a) optimal practitioner contacts for medication management, (b) effective acute phase treatment, (c) effective continuation phase treatment) was adapted into performance indicators MDD-A and MDD-B.

ASSESSING THE VA'S MENTAL HEALTH AND SUBSTANCE USE CARE

Because of the preeminent role of public payers in providing mental health care, the IOM report on mental and substance use conditions called for the Department of Health and Human Services (DHHS) and the Department of Veterans Affairs (VA) to maintain internal efforts to develop, test, and implement performance measures (Institute of Medicine, 2006a).

The VA has answered this call and made improvement of mental health care for veterans an institutional priority. The VA response is appropriate, given that U.S. veterans represent a particularly vulnerable population, and many have mental health or substance use disorders (Hankin, Spiro, Miller, and Kazis, 1999; Pincus et al., 2008, May). The conflicts in Iraq and Afghanistan may add to the numbers of veterans facing mental health challenges. According to one recent study, an estimated 18.5 percent of veterans returned from Operation Enduring Freedom (OEF–Afghanistan) and Operation Iraqi Freedom (OIF–Iraq) met criteria for probable posttraumatic stress disorder (PTSD) or depression (Tanielian et al., 2008). More broadly, 18.5 to 42.5 percent of recently returned service members and veterans have been found to have a mental disorder (Milliken, Auchterlonie, and Hoge, 2007; Seal et al., 2007; Seal et al., 2009; Tanielian et al., 2008). The prevalence of PTSD is also high among veterans of earlier conflicts—for example, the estimated lifetime prevalence of PTSD among male Vietnam veterans is 30.9 percent, compared with 6.8 percent for all American adults (National Center for PTSD, 2007).

The VA offers a promising setting for measuring and improving quality in mental health and substance use care. The Veterans Health Administration (VHA), an agency within the VA, is responsible for the mental and physical health care of all U.S. veterans. The VHA offers several advantages over other settings for quality measurement and improvement, including more of the infrastructure to support quality measurement—e.g., better integration of care, electronic medical records, and more complete data about treatment—than other settings typically afford. In addition, the VHA potentially is a more realistic setting in which to address some of the other infrastructure deficits that impede quality measurement and improvement. As a self-contained care system, the VHA can support greater standardization of clinical assessment and treatment to inform practice and administrative datasets, support the development and validation of mental health performance measures, and promote the use of these measures in clinical practice. The VA has begun these efforts with current initiatives, such as the Uniform Mental Health Services in the *VA Medical Centers and Clinics Handbook*, which defines the minimum clinical requirements for VA mental health services.

The VHA also offers a large-scale laboratory for quality assessment and improvement. The VA is the largest integrated health-care system in the United States (Congressional Budget Office, December 31, 2007; National Center for Veterans Analysis and Statistics, 2010). In FY 2009, the VA had more than 8 million enrollees and treated over 5.7 million patients (National Center for Veterans Analysis and Statistics, 2010). With more than 150 medical centers, 780 community-based outpatient clinics, 230 Vet Centers, 130 nursing homes, 200,000 full-time-equivalent employees, and an annual budget of $44.5 billion, VA facilities have provided some training to an estimated 65 percent of all physicians practicing in the United States today (Longman, 2007).

The VA offers a full array of mental health services at 153 medical centers in the United States, including 145 PTSD specialty clinics, and many of the community-based outpatient clinics offer basic mental health services. Like other health care systems, the VA seeks to deliver high-quality care to its beneficiaries and to identify and rectify problem areas.

Against this background, and with opportunities for improvement clearly in mind, the VA commissioned what is perhaps the largest and most comprehensive systematic assessment of a mental health care system ever undertaken. The evaluation required breaking new ground within mental health quality measurement. It required the development of an approach to simultaneously assess the structure, process, and outcomes of mental health care. Within this framework, new quality measures were developed to cover domains of

quality for which there were no existing measures. We used multiple data sources, assessed each indicator for appropriateness and feasibility, and evaluated each indicator.

In commissioning the evaluation, the VA and the VHA are opening new opportunities for understanding, measuring, and improving the quality of mental health and substance use care for veterans and all citizens as these new strategies are further refined and applied more broadly over time.

GOALS OF THE PROGRAM EVALUATION AND RESEARCH QUESTIONS

In 2006, the VA Office of Policy and Planning contracted with Altarum Institute and the RAND to conduct a formal, independent evaluation of the quality of VA mental health and substance use care. The evaluation was authorized by the Government Performance and Results Act of 1993 and Title 38 of the U.S. Code, which require independent evaluations of large government programs. The evaluation focused on veterans diagnosed with one (or more) of five conditions: schizophrenia, bipolar I disorder, PTSD, major depressive disorder (MDD), and substance use disorder (SUD). The VA selected these conditions because they are among the most prevalent, are associated with high levels of disability, and are costly to treat. The program evaluation sought to assess whether, for the population of veterans with mental health and substance use disorders, the VA has met the goal of restoring their capability to the greatest extent possible and improving the quality of their lives and the lives of their families. It also sought to assess whether, as a leader in the provision of specialized health care services, the VA has met the objective of maximizing these veterans' physical, mental, and social functioning.

The evaluation had four primary goals:

- Assess the extent to which VA care is meeting program goals, as specified by the VA.

- Examine current performance related to program outcomes.

- Assess the needs of veterans to ensure that the nature and scope of future services are aligned with their changing needs and expectations.

- Assess the adequacy of outcomes and outcome measures in determining the extent to which the programs are achieving their intended purposes and outcomes.

To achieve these goals, the Altarum/RAND team was asked to address six research questions:[2]

1. To what extent is the VA achieving the program outcomes[3] for veterans with a diagnosis of schizophrenia, bipolar I disorder, PTSD, MDD, and/or SUD?

2. When appropriately adjusted, how do the outcomes specified for VA patients (with the diagnoses considered in the study) compare with outcomes for comparable veterans treated in non–VA-funded public- and private-sector care? Appendix A in the Statement of Work specifies the goals for each stage of care (diagnosis and assessment, treatment, chronic-disease management, and rehabilitation) and lists program outcomes associated with each goal. How does the available continuum of mental health services compare across Veterans Administration medical centers (VAMCs)? How does the care at each VAMC compare with the range of mental health services at the same site in the first half of FY 2005, in terms of programs offered, staffing level, and mental health workload? Are mental health services

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[2] The initial Request for Applications contained eight research questions; however, questions 4 and 8 were subsequently deleted from the Statement of Work.

[3] Program outcomes are listed in Appendix D.

across the full continuum of care available to all veterans (with the diagnoses considered in the study) who need them?
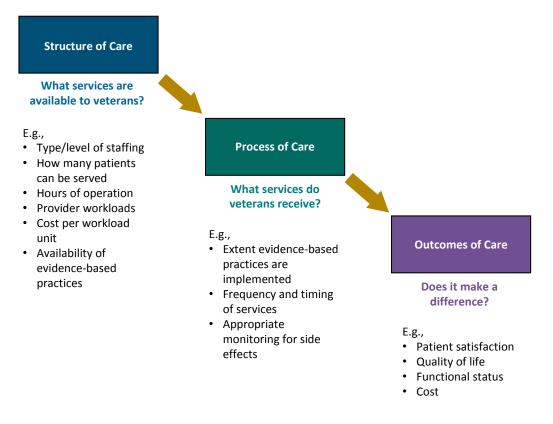
3. How does the availability of care compare across VAMCs?

4. When there is a dual diagnosis (i.e., including co-occurring SUD and the other diagnoses included in the study), are both conditions being managed, and if so, how?

5. What factors influence the use of VA specialty mental health services by veterans who are service-connected[4] for the diagnoses included in the study? What are the barriers, if any, to access to care?

6. In the context of recommendations from the President's New Freedom Commission on Mental Health report, how widespread is the use of the strongest evidence-based models of care for each of the diagnoses (President's New Freedom Commission on Mental Health, 2003)? In particular, are psychosocial approaches to care fully implemented in concert with psychopharmacology approaches, as needed, to support a recovery-oriented model that seeks to return veterans to full roles in the community, at work, and with their families? The specific evidence-based care for each diagnosis needs to be identified. Among the processes to be considered are cognitive behavioral therapy (CBT), social-skills training, supported employment with individual assistance, mental health intensive case management (MHICM) (or other), and VA family education.

OVERALL CONCEPTUAL FRAMEWORK FOR THE EVALUATION

To address the research questions, the evaluation used the structure-process-outcomes conceptual framework described by Donabedian (Figure 1.1). This framework is designed to guide evaluation of quality of care and measure whether a health care system is achieving its intended outcomes (Donabedian, 1966, 1980). Briefly, *patient outcomes* (e.g., symptom severity, patient satisfaction, quality of life, functional status) are influenced by both the *structure* of care (e.g., type/level of staffing, how many patients can be served, hours of operation, provider workloads, availability of evidence-based practices) and the *process* of care (e.g., whether and how evidence-based practices are implemented, appropriate side-effect monitoring, frequency and timing of services). Quality is demonstrated when a health care system is achieving or exceeding its overall goals in delivering appropriate processes of care and improving outcomes. Process of care is measured using performance indicators.

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[4] *Service-connected* is defined as follows: With respect to disability or death, such disability was incurred or aggravated or the death resulted from a disability incurred or aggravated in the line of duty in the active military, naval, or air service. *Service-connected* may also refer to a condition, such as diabetes or malaria, that may have been the product of exposure or activity in the line of duty (VA definition only) (38 U.S.C. §§ 101(16), 310).

Figure 1.1. Structure-Process-Outcomes Framework

Structure of Care

What services are available to veterans?

E.g.,
- Type/level of staffing
- How many patients can be served
- Hours of operation
- Provider workloads
- Cost per workload unit
- Availability of evidence-based practices

Process of Care

What services do veterans receive?

E.g.,
- Extent evidence-based practices are implemented
- Frequency and timing of services
- Appropriate monitoring for side effects

Outcomes of Care

Does it make a difference?

E.g.,
- Patient satisfaction
- Quality of life
- Functional status
- Cost

Process measures, or performance indicators, are most effectively used to determine the quality of care when there is a strong process-outcome link (Berwick, 1995). When the scientific evidence is clear that desired health outcomes can be attributed or linked to a particular process of care, process measures ca be used, because there is reasonable confidence that improved performance on the measure will lead to better health (McGlynn, 1998). Further, while society cares most about improved health outcomes, ther are significant challenges to using outcome measures as measures of quality, because outcomes are influenced by many factors unrelated to health care. Since it is often more feasible to use measures of process rather than outcomes—such as functioning and satisfaction—to measure the quality of care, the link between process and outcome ensures that the outcome remains a priority without requiring that it an exclusive focus of measurement (McGlynn, 1998). Further, examining the processes of care provide information about *why* outcomes may be high or low and may help to identify clinical interventions tha improve outcomes (McGlynn, 2003).

The Altarum/RAND team used data from four different sources to address the goals of the evaluation in the context of this structure-process-outcomes model. The following data were used to evaluate the structure, process, and outcomes of VA mental health care [5]

- *Facility survey data* from May 2007 and October 2009 (information on the structure or availability of care).

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[5] This report presents an overview of the findings. For additional information, see the data on which the report is based.

- *Administrative data* from FY 2004–FY 2008 (information on utilization and costs for this entire period and processes of care for veterans receiving care from the VHA in FY 2007).

- *Medical record data* from FY 2006–FY 2008 (information on utilization and processes of care, including EBPs for veterans receiving care from the VHA in FY 2007 and FY 2008).

- *Veteran survey data* collected during November 2008–August 2009 (information on processes and outcomes for veterans receiving care from the VHA in FY 2007 and FY 2008).

Table 1.1 shows the relationships among the research questions, the structure-process-outcomes framework, and the four main data sources, as well as the chapter or chapters of this report in which each research question is addressed.

Table 1.1. How the Main Research Questions Are Addressed in This Report

Research Question	Focus (Structure, Process, or Outcomes of Care)	Data Sources	Relevant Chapter(s)
1. Is the VA achieving intended outcomes?	Process and outcomes	Veteran survey, medical record review	Chapter 7, "Veterans' Perceptions and Outcomes of Care," Chapter 5, "Documented Processes of Care," Chapter 6, "Variations in Care"
2. How do veterans' outcomes compare with those of non-veterans?	Process	Administrative data	Chapter 8, "Comparison of Care Provided by the VHA and the Private Insurance/Public Sector"
3. How available is care?	Structure	Facility survey	Chapter 4, "The Structure and Capacity of VA Mental Health Care"
4. How are dual diagnoses being managed?	Process	Administrative data, medical record review	Chapter 5, "Documented Processes of Care"
5. Do service-connected veterans have access to specialty care?	Structure and process	Administrative data, medical record review	Chapter 4, "The Structure and Capacity of VA Mental Health Care," Chapter 5, "Documented Processes of Care," Chapter 6, "Variations in Care"
6. How widespread is use of evidence-based care?	Process	Administrative data, medical record review, facility survey	Chapter 5, "Documented Processes of Care," Chapter 6, "Variations in Care"

This report synthesizes and presents the most salient answers to these questions from the analyses of the four data sources. Its primary purpose is not to underscore special strengths or deficiencies in the VA mental health-care system, but to highlight key, representative findings and discuss their significance and implications for VA policy and practice. The report is intended to be useful for a range of audiences, including decisionmakers at the "local" level (Veterans Integrated Service Network (VISN) and local facility administrators responsible for clinical services), officials at the Office of Mental Health Services (who are responsible for mental health care for the entire VA), persons at the Office of Patient Care Services (who are responsible for all care at the VA), and those at higher levels, such as the Deputy Under Secretary for Health and congressional committees working on veterans affairs. The report should also interest other stakeholders and members of the general public who are interested in how the VA is meeting the mental health-care needs of veterans.

ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows. Chapter 2 describes the evaluation's methodological approach in detail. It presents information on the study population, the measures used to assess (quality) performance, and the data sources and collection methods. Chapter 3 describes the characteristics of veterans included in the study and profiles their utilization and the costs of their mental health services. Chapter 4 presents results from the facility survey on the availability and accessibility of mental health services. Chapter 5 presents analyses of processes of care, categorized by type of service: assessment, treatment, chronic-disease management, and rehabilitation/recovery. Chapter 6 highlights some of the notable variations in care across different subpopulations and regions of the United States. Chapter 7 provides results from our survey of a selected group of veterans on their perceptions of care and outcomes. Chapter 8 compares the care provided by the VA with that provided by the privately insured and publicly funded care sectors. Chapter 9 presents our conclusions.

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CHAPTER 2. METHODS

The previous chapter described the analytic framework that guided our evaluation and presented an overview of the data sources we used to conduct the evaluation. This chapter describes our methodology in more detail.

The study team developed a wide range of measures to assess the structure, process and outcomes of VHA mental health care. Measures were collected using four data sources. The overall study cohort was identified using (1) administrative data, which were also used to estimate quality measures. Next, two overlapping stratified random samples of study veterans were selected for the purposes of (2) medical record review to collect additional data on quality measures and a (3) veteran telephone survey to ask veterans about their perceptions of VHA care. Data about the structure of care were collected simultaneously through (4) a survey of administrators at VHA facilities.

This chapter has four sections. The first explains the process we followed in defining and selecting the cohort of veterans with any of the five specified mental health or substance abuse diagnoses. This cohort was used in each phase of the assessment. The second section describes our choice of EBPs for use in evaluating the structure and process of care. In the third section, we explain our approach to assessing VHA mental health care across the VHA's regional VISNs. The fourth section describes the stages we followed in applying our analytic framework, assessing the VHA's structure and capacity for providing care, processes of care, and outcomes. In this section, we explain methodological issues specific to each of the data sources: (1) facility surveys, (2) administrative data on veterans' service utilization and costs, (3) medical records data, and (4) the survey of veterans. More detailed information about methods can be found in the reports that present detailed analyses of each data source (Hepner et al., 2010, June; Pincus et al., 2008, May; Watkins et al., 2010, October; Woodroffe et al., 2010); these reports can be found on the Altarum Institute website.

THE STUDY POPULATION

Cohort Selection

We identified our study cohort using administrative utilization data from the National Patient Care Database[6] (NPCD), which includes a patient treatment file (PTF) and an outpatient care (OPC) file. As noted in Chapter 1, the program evaluation focused on veterans with any of the five following diagnoses: schizophrenia, bipolar I disorder, PTSD, MDD, and SUD. We identified veterans with these diagnoses using the International Classification of Diseases (ICD) codes,[7] which appear in veterans' administrative records. We identified separate study cohorts for each fiscal year from FY 2004 through FY 2008. Each study cohort consisted of veterans whose administrative records contained at least one of 38 study-relevant ICD-9-CM (ICD, 9th Revision, Clinical Modification) diagnosis codes for any of the five conditions and also reflected at least one inpatient episode or two outpatient visits in the fiscal year for any diagnosis (mental health or non mental health).

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[6] These names, although outdated, are still used informally within the VA. Formally, the files are known as the Medical SAS Inpatient and Outpatient Datasets. For inpatient utilization, the specific files employed were main (PM), main observation (PMO), and extended care (XM). For outpatient utilization, the specific file used was events (SE). The Medical SAS Inpatient files also include a non-VA care file (NM), but because there is no corresponding non-VA outpatient utilization file, non-VA care data were obtained from the Central Fee datasets, which contain both types of utilization.

[7] 9th Revision, Clinical Modification (ICD-9-CM).

Veterans were placed in no more than one mental health diagnostic cohort (schizophrenia, bipolar I disorder, PTSD, or MDD) in any fiscal year, based on the modal frequency of appearance of the 38 study-relevant ICD-9-CM diagnosis codes in the veteran's VHA medical utilization files.[8] If a veteran had the same number of diagnosis codes for more than one disorder, ties were resolved using the following ranked ordering of diagnoses: schizophrenia, bipolar I disorder, PTSD, and MDD. Veterans were also placed into the SUD cohort in any fiscal year if their utilization records contained ICD-9-CM diagnosis codes for an SUD. The SUD cohort overlaps with the four mental health diagnostic cohorts, so an individual veteran could be in one of the four mental health diagnostic cohorts or in the SUD cohort, or both.

This definition yielded a study cohort of 836,699 veterans in FY 2007 for whom we examined data on the processes of care provided by the VHA. As described below, these veterans also formed the basis for the medical record review and veteran survey target populations. Veterans were distributed across the diagnostic cohorts as shown in Table 2.1.

Table 2.1. FY 2007 VHA Program Evaluation Diagnostic Cohorts, FY 2007

FY 2007 VHA Diagnostic Cohorts	VHA Study Cohort	
	Unique Veterans	% of Study Cohort
Schizophrenia	81,624	9.8
Bipolar I disorder	61,578	7.4
PTSD	357,289	42.7
MDD	135,387	16.2
SUD	344,866	41.2
Less co-occurring SUD	−144,045	−17.2
Total	**836,699**	**100.0**

Veterans with co-occurring SUD and mental health disorders appear in two places in Table 2.1. They are included in both the mental health row (because they have a mental health disorder) and the SUD row (because they have an SUD). Therefore, to accurately reflect the total VHA study cohort size, these double-counted veterans are removed in the "Less co-occurring SUD" row so that they only appear once in the "Total" row. However, it is important to remember that unless otherwise noted, in subsequent chapters, the categories "SUD cohort" and "MH cohort" are not mutually exclusive, and individuals with co-occurring mental health and substance use disorders appear in both cohorts.

For study purposes, we relied on the diagnostic codes found in the administrative data to classify each veteran into a single mental health diagnostic cohort (schizophrenia, bipolar, PTSD, or MDD), but these assignments should not be construed as "diagnostic truth" for clinical purposes. For example, while the majority of FY 2007 study veterans (73 percent) were classified in a single diagnostic category, 27 percent were recorded in the administrative data as receiving services for two different study-qualifying diagnoses. As noted above, these veterans were placed into a single diagnostic cohort based on the frequency of the modal diagnosis appearing in the administrative data.

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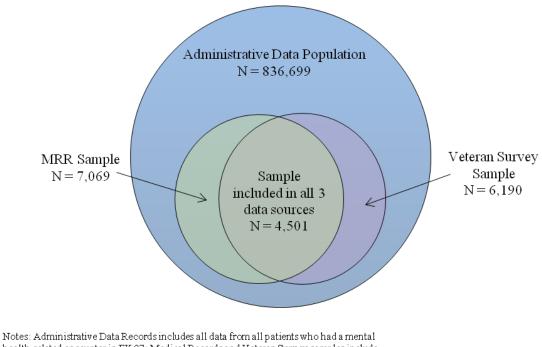
[8] Veterans initially placed in the MDD cohort were recategorized into the bipolar-disorder cohort if they received more than one diagnosis of bipolar I disorder during the fiscal year.

Study Population for Veteran Survey and Medical Record Review

Sampling Procedure

We identified two overlapping stratified random samples of veterans from whom to collect veteran survey and medical record data, based on the FY 2007 study cohort. Figure 2.1 depicts the relationships among the three data sources.

Figure 2.1. Relationships Among Data Sources and Final Sample Sizes

Notes: Administrative Data Records includes all data from all patients who had a mental health-related encounter in FY 07; Medical Records and Veteran Survey samples include patients who had mental health-related encounters in FY 07 and any additional utilization in FY08; Figure not drawn to scale

A total of 9,619 veterans were invited to participate in the veteran survey, of whom 6,190 (67 percent) completed interviews during the field period of November 2008 through August 2009. The medical record review was conducted for 7,069 sampled veterans. The sampling procedure is described in more detail below. The target population for both the veteran survey and the medical record review included veterans in the FY 2007 study cohort who also had any additional VHA utilization in FY 2008, including non mental health visits. This allowed for sufficient time to locate and invite veterans to participate in the veteran survey while minimizing recall bias when reporting on recent treatment.

The sampling plan involved separating the target population into segments, or strata, defined by each combination of VISN, mental health diagnostic cohort, and SUD diagnostic cohort. Veterans could belong to one of the following combinations of cohorts: the SUD cohort only; a mental health diagnostic cohort only; or one mental health plus SUD diagnostic cohort. We selected a random sample from each individual stratum. All 9,619 of the veterans sampled were invited to participate in the veteran survey.

We used sampling weights to account for the unequal sampling probabilities of veterans across VISNs and diagnostic cohorts. This allowed us to improve the extent to which the findings based on our sample generalize to the population (Cochran, 1977). For example, because of the stratified sampling design, 46 percent of veterans in the target population and about one-quarter of veterans in the smaller sample were

in the PTSD cohort in the veteran survey. We used sampling weights to correct for this underrepresentation of the PTSD cohort—one version to obtain national-level estimates and another to obtain VISN-level estimates (Chantala, Blanchette, and Suchindran, 2006; Pfeffermann et al., 1998; Rabe-Hesketh and Skrondal, 2006). We weighted all estimates obtained from the medical record review data using these sampling weights to adjust for the stratified sampling design.

Not all veterans agreed to complete the veteran survey: 629 (6.5 percent) refused to complete the full survey; 377 (3.9 percent) were unable to complete the survey for physical, mental, or other unspecified reasons; 70 (0.7 percent) could not be reached before the field period ended; 964 (10.0 percent) were not reached after the maximum number of 15 attempts; 964 (10.0 percent) were not found; and 105 (1.1 percent) were institutionalized and not reachable. Also, 320 veterans (3.3 percent) died before the RAND Survey Research Group attempted to contact them.

We further adjusted the veteran survey sampling weights for nonresponse to account for differences between respondents and nonrespondents. The nonresponse weights were estimated as the inverse predicted response probabilities from a logistic regression of response versus nonresponse on several veteran characteristics. The sampling weight was then multiplied by the nonresponse weight to adjust for the effect of nonresponse on the survey estimates. Although there are several statistically significant differences between respondents and nonrespondents on observed characteristics, the practical significance of most of these differences is small. Appendix C details the differences found between respondents and nonrespondents.

Section 2.4 of the Veteran Survey (Hepner et al., 2010, June) presents additional information on the development of sampling and nonresponse weights.

EVIDENCE-BASED PRACTICES

As noted in Chapter 1, one of the VA's research questions focused on the availability and use of EBPs, treatments for which there is empirical evidence linking the delivery of the practice with improved mental health outcomes. The availability of these practices and the extent to which veterans use them are important indications of the quality of mental health care provided by the VHA.

The study team, in conjunction with the U.S. Department of Veterans Affairs Advisory Group,[9] identified 12 EBPs for incorporation into the assessment of structure and processes of care. To select these EBPs, we first reviewed the treatment literature for each of the five study diagnoses to identify candidates for inclusion. We next examined practice guidelines, randomized controlled trials, meta-analyses, and reviews for each diagnosis to determine the levels of evidence for each of these treatments and examined the expectations set forth in the VHA Mental Health Strategic Plan (MHSP) and the President's New Freedom Commission. We then reviewed the candidate EBPs with the VA Advisory Group during a two-day face-to-face meeting in December 2006 and selected those with the strongest base of evidence, listed below:

- Medication evaluation and management
- MHICM
- Supported employment
- Family psychoeducation
- CBT
- Intensive outpatient treatment for SUDs

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[9] The advisory group included representatives from VHA Patient Care Services and the VHA Office of Mental Health, a well as several field practitioners.
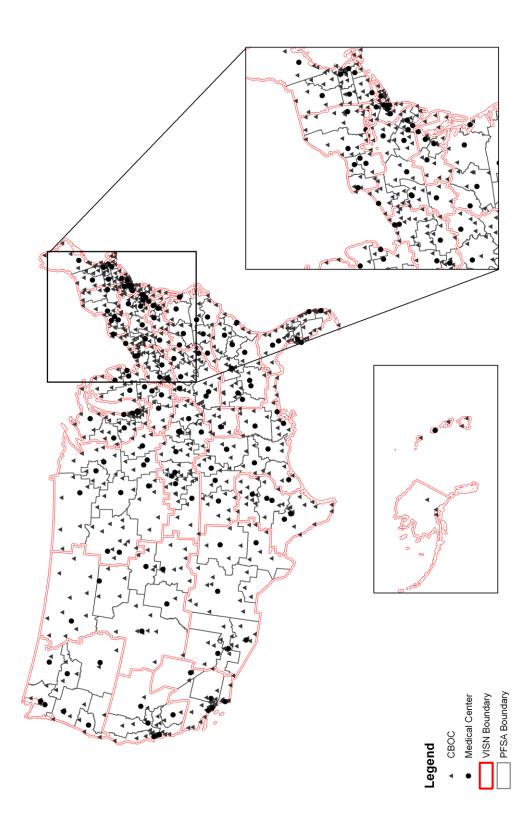
- Psychosocial interventions for SUDs
- Opiate-substitution maintenance therapy with methadone or buprenorphine
- Integrated dual-diagnosis therapy
- Specialized therapies for PTSD
- Treatment with clozapine
- Electroconvulsive therapy.

ASSESSING VHA PERFORMANCE AT THE VISN LEVEL

In addition to evaluating the VHA's performance systemwide in serving the study population, we also assessed performance at the regional level, in terms of both structure and process (see pp. 15-19) for descriptions of the analytic approach). We defined "regional level" as referring to each of the VHA's 21 VISNs, which are regionally oriented networks designed to pool and align resources to meet local health care needs and provide greater access to care. VISNs have non-overlapping geographic areas of responsibility.

Within each VISN, there are multiple major VAMCs, each of which reports to the VISN. A VAMC typically comprises a hospital and one or more community-based outpatient clinics (CBOCs) for both primary and specialty care. Each VAMC is responsible for one or more CBOCs and, in a few cases, other VAMCs or freestanding hospitals. These major VAMCs are thus "parent" facilities and, extending the logic of the VISN definition, also have non-overlapping geographic areas of responsibility within the VISN, typically delineated by county boundaries. The study team adopted the term *parent facility service area* (PFSA) to denote these areas. We identified 141 unique PFSAs (Figure 2.2).

Figure 2.2. VISN and PFSA Boundaries

Legend

CBOC ▲
Medical Center ●
VISN Boundary
PFSA Boundary
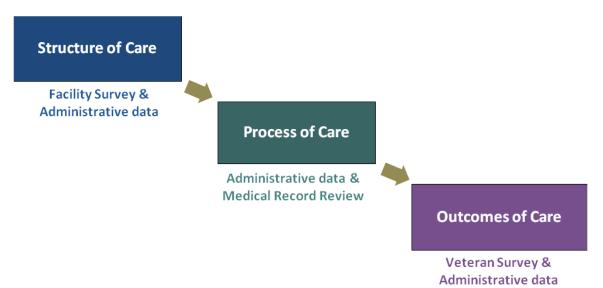
The VISN of each veteran in the study was determined by identifying the most frequently listed zip code of residence among his or her VHA utilization records from the administrative data. The county for that zip code was identified and used to assign the veteran to a single PFSA and VISN. Although veterans were assigned this way for analytic purposes, veterans are generally free to use any facility in the system. Nevertheless, only 5.2 percent of FY 2007 inpatient discharges and 3.4 percent of outpatient encounters were obtained from VHA facilities outside of a veteran's home VISN.

SPECIFIC STEPS IN ASSESSING THE STRUCTURE, PROCESS, AND OUTCOMES OF VA MENTAL HEALTH CARE

As outlined in Chapter 1, this study uses the Donabedian structure-process-outcomes framework to evaluate the quality of care (Donabedian, 1966, 1980). *Structure* refers to aspects of care such as the type and level of staffing, patient capacity, hours of operation, provider workloads, and availability of EBPs. *Process* refers to the frequency, timing, and choice of services provided. *Outcomes* refers to patient outcomes, such as symptom levels, satisfaction, quality of life, and functioning. This section describes in more detail the methods we used to assess VA performance across each area of the framework. To assess the structure of care, we conducted two facility surveys and analyzed administrative data. To assess process of care, we analyzed administrative data and conducted a medical record review. To assess the outcomes of care, we conducted a veteran survey and analyzed administrative data. Figure 2.3 shows the parts of our framework and their relationship to the data sources.

Figure 2.3. Data Sources Associated with the Structure-Process-Outcome Model

Structure of Care
Facility Survey & Administrative data

Process of Care
Administrative data & Medical Record Review

Outcomes of Care
Veteran Survey & Administrative data

Structure

To assess the structure of VA mental health care, the Altarum/RAND team conducted a survey of VA facilities in the United States. This survey was designed to elicit information about the availability of VA mental health services to veterans who need them, barriers to access to care, and the use of EBPs and recovery-oriented models of care. The survey focused on the structure of care as reflected in the attributes of VAMCs, CBOCs, and staff who provide care. It was administered twice, in May 2007 and October

2009. Each time, 100 percent of the targeted population of 139 PFSAs identified for the first survey[10] completed it.

The facility survey was developed between October 2006 and March 2007 by the study team, with consultation from the VA Advisory Group to ensure that the survey contained VA-appropriate vocabulary, that the topics flowed together logically, and that the major issues in the VA MHSP were covered. The follow-up survey maintained an almost identical structure to preserve comparability.

Using these data, we evaluated the VA's capacity to deliver care to the target population by assessing the availability of services and EBPs within PFSAs and comparing the availability to the size of the potential target population, as defined using diagnostic cohorts. For example, we identified all patients in the schizophrenia diagnostic cohort as the potential target population for therapy that treats this condition (clozapine therapy) and all veterans in the PTSD diagnostic cohort as the potential target population for general PTSD therapy. We used the zip-code and county-based methodology described above to determine the number of veterans in the target population within each PFSA.

The survey contained approximately 250 questions and took between 5 and 16 hours to complete, including time required to collect the information, review it, and enter it into the web-based application. A hard copy of the survey was also mailed to the primary respondent at each PFSA.

The targeted respondent for the survey was the supervising chief of mental health or a functional equivalent at the PFSA, designated by the VISN's chief medical officer. Primary respondents were instructed to consult with other staff members to obtain detailed information required to answer many of the survey questions. The study team communicated extensively with local VA staff to address questions or concerns throughout the survey process.

The survey contained two broad types of questions. The first type focused on basic mental health services (i.e., services that should be available to all veterans with mental illness, such as inpatient hospitalization, crisis intervention, or psychotherapy); specialized mental health services (i.e., those that target a specific population or diagnostic category, such as women veterans, the homeless, or veterans with PTSD); and consumer-oriented mental health services (i.e., additional services related to recovery support and consumer involvement). The second type of question related to the existence and availability of EBPs.

Process

While the ultimate goal of quality improvement is to improve patient outcomes (e.g., symptoms, quality of life, functional status), it is difficult to assess quality using outcome metrics, because outcomes may be influenced by many factors other than the health care system in which patients receive care. Patient outcomes are also typically more costly to measure than processes of care. To address these challenges, researchers have proposed using process measures to assess quality when there is clear evidence that desired health outcomes can be linked to a particular process (McGlynn, 1998). The link between process and outcomes ensures that outcomes remain a priority without requiring an exclusive focus on outcome measurement. Process measures (referred to below as *performance indicators*) provide the health system with information about why quality is poor and offer concrete, actionable steps toward improvement. The stronger the process-outcome link for a given measure, the more likely it is that improved performance will lead to better patient outcomes. For these reasons and others, the VA tends to rely on process measures to assess performance.

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[10] VAMCs in Manila and the Philippines and one in eastern Kansas (reported on by another VAMC) were not surveyed.

Performance-Indicator Development

Performance indicators are tools that attempt to characterize the processes of care for patient experiences. They generally reflect care that is recommended by the most recent practice guidelines and have high face validity in that they align with general expert opinion. Indicators are used to assess the degree to which recommended care is actually implemented and are important for identifying gaps in quality. To measure VA performance on processes of care, we developed performance indicators using the following approach: (1) search for existing measures; (2) identify explicit treatment recommendations; (3) iteratively evaluate and refine measures; (4) determine technical specifications, including data sources and definitions; and (5) pilot-test the measures.

We identified existing measures by conducting a systematic review across peer-reviewed studies, technical reports, reviews, indicator clearinghouses (Center for Quality Assessment and Improvement in Mental Health, 2007a, 2007b; National Committee for Quality Assurance, undated; National Quality Forum, 2009), electronic databases, relevant bibliographies, and outreach to experts and industry representatives. Because existing performance indicators did not cover all program outcomes identified by the Statement of Work, we developed new indicators to cover these domains. We reviewed clinical practice guidelines and extracted discrete treatment recommendations to capture aspects of care that were insufficiently addressed by existing measures.

This process yielded many candidate measures, which we categorized by Statement of Work program outcome, IOM domain, grade of evidence (defined below), data source, and applicable disorder(s). The IOM domains include timeliness, safety, effectiveness, efficiency, patient-centeredness, and equity—the six aims of a high-quality health system.

We evaluated strength of the process-outcome link according to the three-tiered grading system developed by the U.S. Public Health System Task Force (USPHSTF) (U.S. Preventive Services Task Force Ratings: Strength of Recommendations and Quality of Evidence) (see Table 2.2). The grades do not, however, reflect either predictive or translational validity, i.e., the ability of a measure to predict patient outcomes when measured prospectively or our level of certainty that the technical specifications[11] developed to operationalize the indicators accurately reflect the process of care the indicator is trying to capture. In most cases, this information is unknown. Despite the limitations of our approach, we believe it is the best approach available at this time.

Table 2.2. USPHSTF Performance Indicator Grading System

Grade Level	Source of Indicator
I	At least one properly randomized controlled trial (RCT)
II	Well-designed cohort, case-controlled, controlled, or time series trials without randomization
III	Opinions of respected authorities based on clinical experience, descriptive studies, and case reports or reports of expert committees

A panel of technical experts iteratively reviewed the candidate measures and selected a subsample for further refinement. Selected measures were based on evidence grade, clinical judgment, utility to VA

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[11] The technical specification describes the specific data elements, logic, and definitions necessary to evaluate the indicator. For example, the technical specification of the physical exam indicator (Cross-cutting 4) requires that a physical exam must include "all 6 of the following to pass: vital signs, heart, lungs, abdomen, extremities, and cognition."

leadership, feasibility, and representation across program outcomes, IOM domains, and diagnostic cohorts. This process of review, selection, and refinement proceeded iteratively until a final set of measures was produced with all necessary technical specifications, including administrative data codes, abstraction elements and abstraction sequence, and programming logic.

We identified and developed a total of 88 performance indicators, 31 of which required only administrative data and 57 of which required a combination of administrative and medical record data. We refer to the second group as "hybrid" indicators.

Measuring Performance Using Administrative-Data-Based Performance Indicators

We used the administrative data to measure system performance on access measures and utilization. Utilization included case-management measures, such as management of individuals with dual mental health and SUD diagnoses, and number of visits. As noted earlier, veteran utilization data come from the NPCD, which comprises the PTF and the OPC file. Laboratory and pharmacy data were obtained from the laboratory and pharmacy National Data Extract files, which are maintained by the VHA's Decision Support System (DSS).

Measuring Performance Using Medical-Record-Based Performance Indicators

We used medical records to assess processes of care regarding assessments, treatment adherence, reasons for non-adherence, and use of evidence-based psychotherapies. The study team developed detailed abstraction modules for use with the VA electronic medical record based on the performance indicator set. The modules were then pilot-tested and revised to omit data elements that were too difficult to collect and to add clarifying tips or examples when necessary. Thirteen nurses and clinical social workers with 2 to 5 years of mental health and substance abuse clinical or medical-record abstraction experience were hired and received 5 days of face-to-face training. Before abstractors began data collection, they abstracted sample records, which were then compared with a "gold standard" to determine training efficacy and abstractor quality. Once abstractors passed the gold-standard testing, they began reviewing medical records, averaging 20 to 40 records per abstractor per week. Inter-rater reliability estimates were calculated at the completion of abstraction for a subsample of medical records. To account for items with high prevalence rates and for possible disagreement between raters with regard to baseline rates of each measure, reliability was estimated using the prevalence-adjusted bias-adjusted kappa statistic (PABAK) (Byrt, Bishop, and Carlin, 1993). Any abstracted variables having less than moderate agreement (PABAK < 0.4) (Landis and Koch, 1977) were discarded.[12] Full details on the inter-rater reliability are given in Appendix C of the medical record review report (Farmer et al., 2010).

Once abstractors completed approximately 30 records, data-quality audits were conducted and the data were analyzed. The outcomes of these analyses were used to focus follow-up team training, which occurred via weekly 2-hour conference calls to answer questions, resolve challenges, and discuss complex cases. Between April 2009 and March 2010, abstractors also communicated questions to study investigators about specific cases, and the answers were recorded in a log distributed weekly to all abstractors.

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[12] As a result, we do not report results for six medical record indicators. For an additional 10 indicators, we report only on the part of the indicator for which we have good reliability.

Statistical Methods for Assessing National-Level Performance

The study team computed descriptive statistics to summarize VA national-average performance for indicators for those veterans for whom the indicators were relevant. Descriptive statistics for medical-record indicators were weighted to account for the stratified sampling design. Estimates were also obtained for each of the following subgroups: male versus female veterans; age (18–34; 35–44; 45–54; 55–64; and 65 and older); veterans living in urban versus rural regions; presence of SUD (i.e., in the SUD cohort); whether the veteran participated in OEF/OIF; and whether the veteran was service-connected for a study-qualifying condition. Significance tests of whether VA national performance on quality indicators differed across the subgroups within each of these characteristics were done for both medical-record and administrative-data indicators. Though the administrative-data-based indicators use data on the target population in FY 2007, statistical testing under a superpopulation model allows for making inferences about VA performance more generally rather than restricting them to the year of analysis (Elliott, Zaslavsky, and Cleary, 2006). To account for the fact that some medical-record-based performance-indicator estimates are based on small sample sizes and thus have low precision, results are presented only for those estimates that have are based on an effective sample size (ESS) of 30 or more in the denominator of each subgroup being examined. The ESS is an estimate of sample size that is adjusted for the increase in the variance of estimates due to weighting to account for differential sampling probabilities. An ESS reflects the equivalent raw sample size that would be required if the data had been drawn from a simple random sample of the population.

Statistical Methods for Assessing VISN-Level Performance

VISN-level performance for medical-record-review indicators was estimated using generalized linear mixed models (GLMMs), which yielded an estimate of average VISN performance and an estimate of the variance of VISN effects about that average. All analyses were weighted to account for the sampling design. This variance estimate could be zero if there was negligible or zero VISN-level variation in the data. We therefore report only VISN-level estimates that are supported by sufficient VISN-level variation in the data. No VISN-level variation was found for six medical-record indicators, but such variation was present for every administrative-data-based performance indicator.[13] Comparative VISN-level performance was assessed using a superpopulation model to allow for making inferences about VA performance more generally rather than restricting inference only to the year of analysis (Elliott et al., 2006). VISN-level-effects estimation was restricted to those medical-record-based performance indicators for which a VISN-level sample size of at least 30 veterans per VISN (total N > 630) was expected. The implication of this second restriction is that only national-level performance estimates are presented for an additional 35 medical-record-based performance indicators.[14]

Outcomes

In the Donabedian model of health care quality, outcomes are "a change in a patient's current or future health status that can be attributed to antecedent health care" (Donabedian and Bashur, 2002). Outcomes are the consequences of health care and sometimes may extend beyond individual patient morbidity and

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[13] The six medical record indicators are: Bipolar-2, Bipolar-5, MDD-5, Schizophrenia-1, Schizophrenia-2, Schizophrenia-6, and SUD-8.

[14] Bipolar-1, Bipolar-3, Bipolar-4, COD-1, COD-2, COD-4, Cross-cutting-5, MDD-3, MDD-5, MDD-6, MDD-7, MDD-8, Psychosocial-3, Psychosocial-4, Psychosocial-5, PTSD-1, PTSD-2, PTSD-3, PTSD-4, PTSD-5, PTSD-6, Schizophrenia-1, Schizophrenia-3, Schizophrenia-4, Schizophrenia-5, SUD-1, SUD-2, SUD-3, SUD-4, SUD-5, SUD-6, SUD-7, SUD-8, SUD-9, and SUD-12.

mortality to societal benefits, such as reduced motor vehicle accidents and decreased economic costs. We assessed outcomes of care (see Chapter 7) through the veteran survey and analysis of administrative data.

The veteran survey focused on four areas of patient experience:

- Veteran perceptions of VA care, including timeliness, staff orientation toward recovery, and satisfaction
- Veteran functioning and perceived improvement
- Use and perceptions of psychosocial services
- Veteran decisions to use VA services.

Health care utilization and cost outcomes were derived for the study cohort from the administrative data, which included veteran cost data from the Discharge National Data Extract (DISCH NDE) and the Outpatient National Data Extract (OUT NDE), both maintained by the VHA's DSS. Although the VA does not bill directly for care, it uses detailed methods to capture and attribute incurred costs. The DSS data files comprise a longitudinal database combining selected clinical data and cost data from numerous VA national databases. DSS also provides a mechanism for attributing direct and indirect (overhead) costs of care to specific units of service and the specific patients who receive them. Aggregating the costs of services associated with each patient allows for comparison of any patient subset with total VA costs. The following chapters occasionally refer to the costs or utilization of "non-study veterans." We capture this information by subtracting the costs or utilization units associated with study veterans from the total VA costs or utilization over the same time period.

Statistical Methods for Analyzing Outcomes from the Veteran Survey

The methods used for analyzing the veteran survey data are similar to those previously described for the medical-record indicators. Weighted descriptive statistics summarized VA national-average performance for each veteran survey measure for those veterans for whom the measure was relevant. Estimates were also obtained for each diagnostic-cohort group plus the same subgroups examined for the medical-record-review data.

VISN-level performance was estimated using GLMMs that were weighted to adjust for the sampling design and veteran nonresponse. VISN-level estimates for patient outcome measures from the veteran survey were risk-adjusted (or "case-mix adjusted"), since outcomes are determined not only by the quality of care but also by patient characteristics. VISN-level estimates for measures that assess patient perceptions were risk-adjusted, since perceptions might vary by patient characteristics (Hermann, Rollins, and Chan, 2007; Schacht and Hines, 2003). Specifically, VISN-level comparisons for measures of timeliness, satisfaction, recovery orientation of staff, functioning, and perceived improvement in functioning were risk-adjusted for the following characteristics previously found to be associated with mental health outcomes and patient satisfaction among mental health care users (Fontana, Ford, and Rosenheck, 2003; Rosen et al., 2006; Rosenheck and Mares, 2007): gender, Hispanic ethnicity, race, age, education level, employment status, marital status, Veterans RAND 12 Item Health Survey (VR-12) mental health summary score, VR-12 physical health summary score, functioning as measured by self-reported health status, diagnostic cohort, presence of co-occurring SUD, and service connectedness.

Statistical Methods for Analyzing Utilization and Cost from the Administrative Data

We examined descriptive statistics on utilization and cost for the entire study cohort. Because the age-sex distribution of veterans differs across VISNs, we adjusted estimates of utilization and cost per veteran to facilitate comparisons across VISNs. VISN-level estimates of utilization, length of stay, and cost were standardized to adjust for variances in the age and sex distribution of study veterans in each VISN. For

analyses of OEF/OIF veterans, VISN-level estimates of utilization, length of stay, and cost were standardized to adjust for variances in the age and sex distribution of veterans in the OEF/OIF population. In order to make comparisons of the OEF/OIF versus non-OEF/OIF populations that account for differences in the age-sex distribution of veterans in these subpopulations, the non-OEF/OIF VISN-level estimates were standardized to match the age-sex distribution of the OEF/OIF population (Mosteller and Tukey, 1977).

Non-Study Comparison Groups

The evaluation also compared VA performance on selected administrative-data indicators with the same indicators assessed in a large, commercially insured population. The methodology and results of this private-plan comparison are described in Chapter 8.

WHERE TO FIND MORE INFORMATION ABOUT THE EVALUATION METHODOLOGY

Chapter 3 presents detailed information about the characteristics of our study population. Further details about cohort selection, the development of performance indicators for the various data sources, and details of our analyses of the evaluation's four main data sources (facilities survey, administrative data, medical record review, and veteran survey[15]) are given in the following supporting documents:

Pincus, H., D'Amico, E., Gechter, K., Horvitz-Lennon, M., Keyser, Donna, Mannle, Thomas E., Jr., et al. (2008, May). *Program evaluation of VHA mental health services: Phase 1 report*. (Contract # GS 10 F-0261K). Alexandria, VA: Altarum Institute and RAND-University of Pittsburgh Health Institute.

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Hepner, K. A., Paddock, S. M., Watkins, K. E., Solomon, J., Burkhart, Q., Smith, B., and Pincus, H. A. (2010, June). *Program evaluation of VHA mental health services: Client survey report* (Contract # GS 10 F-0261K). Alexandria, VA: Altarum Institute and RAND-University of Pittsburgh Health Institute.

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[15] The veteran survey was referred to as the client survey in previous reports.

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CHAPTER 3. VETERANS IN THE STUDY COHORT: A DETAILED PROFILE

This chapter profiles the FY 2008 study cohort in detail. It provides a demographic and clinical overview of the study cohort overall and by diagnostic cohort and presents data on the study cohort's health care utilization and costs.

A DEMOGRAPHIC AND CLINICAL OVERVIEW OF THE STUDY COHORT

The FY 2008 study cohort[16] consists of veterans whose VHA utilization records contained at least one of 38 study-relevant ICD-9-CM diagnosis codes for the five study conditions and also at least one inpatient episode or two outpatient visits annually for any diagnosis. Each veteran was categorized into no more than one mental health diagnostic cohort. The 906,394 veterans in the FY2008 study cohort constitute approximately 3.8 percent of the estimated number of all living veterans and 16.5 percent of all veterans who used VHA services in that year.[17] As noted in Chapter 1, patients in these diagnostic groups were chosen for our evaluation because they are typically sicker, require more care, and cost more to treat than the average VA patient.

While the four mental health diagnostic cohorts are mutually exclusive, study veterans in these cohorts can also be included in the SUD diagnostic cohort. Such veterans are said to have *co-occurring SUD* and are referred to as being in the *co-occurring disorder cohort*. Veterans who appear in the SUD cohort but not in any of the mental health cohorts are said to have *SUD only*, as shown in Figure 3.1; 58.9 percent of the study veterans are in a single mental health cohort,[18] 23.3 percent are in the SUD-only cohort, and 17.8 percent are in the co-occurring SUD cohort.
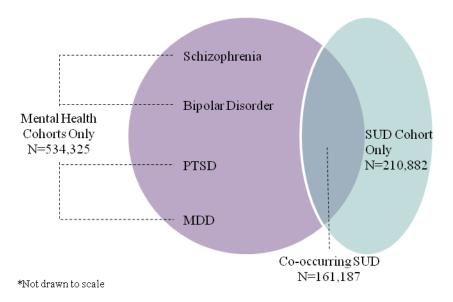
The FY 2008 study veterans are distributed across the diagnostic cohorts as shown in Table 3.1, which also provides detailed information on the extent to which veterans in each cohort experience co-occurring SUD. It is important to note that veterans with co-occurring SUD are counted twice—once in a mental health cohort (schizophrenia, bipolar, PTSD, MDD) and again in the SUD cohort. The first column of Table 3.1 lists the five diagnostic cohorts included in the program evaluation. The second and third columns show the total number of veterans in each diagnostic cohort and the percent representation in the FY 2008 study cohort. The fourth and fifth columns show only veterans with a single mental health diagnosis, and the sixth and seventh columns show only veterans with a co-occurring SUD. Further, while it is reasonable to evaluate the standard of care for a condition in light of the diagnosis recorded, this is not meant to minimize or mask the clinical complexity of these study veterans, approximately half of whom present with both multiple mental health conditions and comorbid general medical health conditions.

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[16]While the rest of this report refers to the FY 2007 cohort, which was the most recent cohort for which medical record review and veteran survey samples and performance indicators using administrative and medical-record review data are available, the FY 2008 cohort is the most recent for which cost and utilization data are available.

[17] VHA patients are overwhelmingly but not exclusively veterans. Employees, surviving spouses, active duty military, or others may also be patients. For convenience, all VHA patients are referred to as veterans in this and subsequent chapters.

[18] The mental health diagnostic cohorts are not drawn to scale in Figure 3.1.

Figure 3.1. Illustration of Co-Occurring SUD, Using FY 2008 VHA Program Evaluation Diagnostic Cohorts

*Not drawn to scale

Table 3.1. FY 2008 VHA Program Evaluation Diagnostic Cohorts

FY 2008 VHA Diagnostic Cohorts	Total VHA Study Cohort		Single Mental Health Diagnosis		Mental Health + Co-occurring SUD Diagnoses	
	Unique Veterans	% of Study Cohort	Unique Veterans	% of Study Cohort	Unique Veterans	% of Study Cohort
Schizophrenia	80,914	8.9	60,290	6.7	20,624	2.3
Bipolar I disorder	65,090	7.2	43,721	4.8	21,369	2.4
PTSD	403,593	44.5	318,593	35.1	85,000	9.4
MDD	145,915	16.1	111,721	12.3	34,194	3.8
SUD	372,069	41.0	210,882	23.3	161,187	17.8
Less co-occurring SUD	−161,187	−17.8			−161,187	−17.8
Total, VHA study cohort	906,394	100.0%	745,207	82.2	161,187	17.8

The schizophrenia row can be used as an illustration of what each diagnostic category includes. Reading from left to right, 80,914 veterans were categorized into the schizophrenia cohort; 60,290 were classified based on schizophrenia diagnoses only, and 20,624 had both schizophrenia and co-occurring SUD diagnoses. Because veterans with co-occurring SUD are double-counted and are included twice in the second column of the exhibit labeled "unique veterans" (once in the mental health diagnostic-cohort row and once in the substance use diagnostic-cohort row) they are subtracted to obtain the unduplicated cohort total of 906,394.

Table 3.2 presents demographic and other characteristics of study veterans in FY 2008 in each diagnostic cohort.

Table 3.2. FY 2008 Study Veterans' Characteristics, by Diagnostic Cohort

		All (N = 906,394)	Schizo-phrenia (N = 80,914)	Bipolar I disorder (N = 65,090)	PTSD (N = 403,593)	MDD (N = 145,915)	SUD All (N = 372,069)	Co-occurring Disorder (N = 161,187)	SUD Only (N = 210,882)
Characteristic									
Age (% of cohort)	18–34	9	4	8	12	7	7	10	4
	35–44	9	8	14	8	11	9	11	8
	45–54	21	32	32	10	26	30	28	32
	55–64	44	39	29	55	34	41	45	38
	65+	17	18	16	14	22	13	6	18
Gender (% female)		7	6	14	6	13	4	6	2
Rural/urban location (% rural)		24	19	22	27	23	21	20	21
SUD status (% in SUD cohort)		41	25	33	21	23	100	100	100
OEF/OIF status (% yes)		9	1	3	16	4	6	10	3
Service connection (% yes)		56	59	44	77	45	37	54	24

The number of veterans included in the program evaluation who received medical care provided or paid for by the VA increased between FY 2004 and FY 2008, as shown in Figure 3.2.
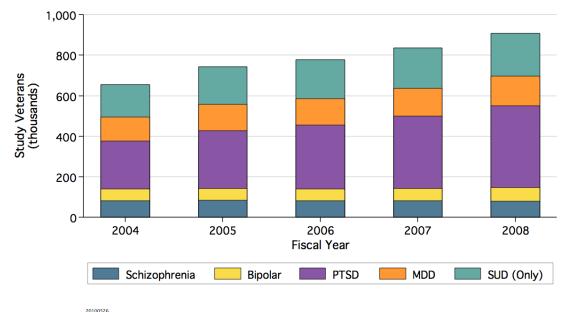
Figure 3.2. Trend in Program Evaluation Diagnostic Cohorts, FY 2004–2008

Over the 5-year study period, all diagnostic cohorts increased at an average annual rate of 8.5 percent and increased cumulatively 38.5 percent. However, these rates of increase reflect overall *net* change in the VA study cohorts and can mask significant underlying changes in each diagnostic cohort. Beginning with FY 2005, each annual diagnostic cohort can be described as the sum of four underlying temporal categories: (1) veterans who were in the same diagnostic cohort in both the current and prior years; (2) veterans who remained in the overall cohort but switched diagnostic-cohort assignment from one year to the next; (3) veterans who started treatment or were new to treatment for their study-related conditions; and (4) veterans who apparently left treatment, i.e., were not observed in the subsequent year.[19] After analyzing these factors, we identified a net population of 1,496,479 unique veterans in the study cohorts over the 5-year study period.

Of the FY 2008 cohort of 906,394 veterans, 298,701 (33.0 percent) were included in all five years of the study period. Of these, 238,119 (26.3 percent) were in the same diagnostic cohort each year (e.g., schizophrenia, bipolar I disorder). Finally, 20 percent of the net population of veterans were included in all five years of the study population, and 16 percent were in the same diagnostic cohort each year.

Residence

As described in Chapter 2, veterans were assigned to a single "home" VISN and "home" PFSA based on their zip code of residence in the VHA utilization records. Figure 3.3 shows the distribution of FY 2008 study veterans by PFSA (shaded areas), along with VISN boundaries, VAMC locations, and CBOC locations.

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[19] This analysis did not ascertain the *reasons* for the changes. For example, veterans no longer observed in the study cohort could have died, had a change in personal circumstances, or successfully completed treatment, among other factors.
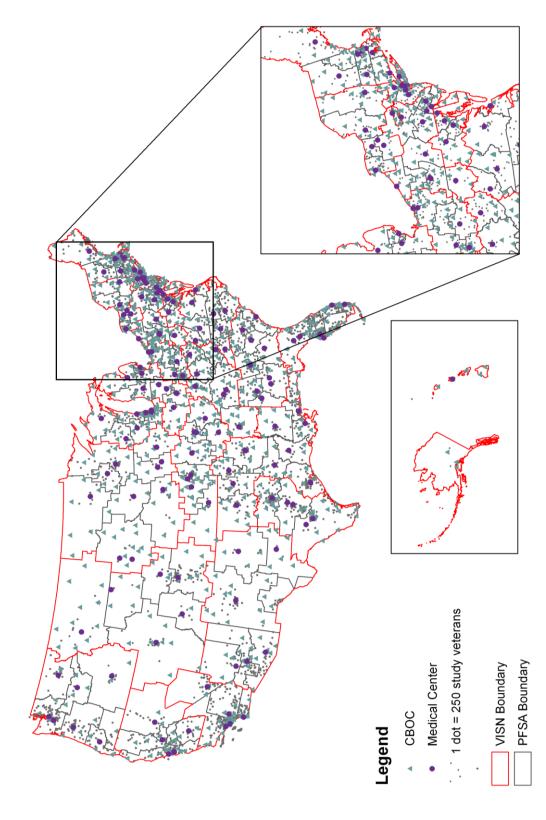
Figure 3.3. FY 2008 Study Veterans, by PFSA of Residence

Legend

- ◄ CBOC
- ● Medical Center
- ⋰ 1 dot = 250 study veterans
- ▭ VISN Boundary
- ▭ PFSA Boundary

VISN 16 (South Central VA Health Care Network) contains the most FY 2008 study veterans (78,176), and VISN 2 (VA Health Care Network Upstate New York) contains the fewest (21,629). The corresponding VISN names and VISN numbers are listed in Appendix A.

Clinical Complexity and Functioning

Although we categorized veterans into no more than one mental health cohort and/or the SUD cohort for analytic purposes, many veterans in the FY 2008 study cohort had multiple mental health conditions and/or comorbid general medical conditions as defined by at least one outpatient visit or inpatient admission that had a primary diagnosis included in the Charlson comorbidity index (Charlson et al., 1994) (Table 3.3).

Table 3.3. Clinical Complexity, FY 2008 Study Veterans

		FY 2008 Study Diagnostic Cohort					Total
		Schizophrenia	Bipolar	PTSD	MDD	SUD only	
Number of veterans		80,914	65,090	403,593	145,915	210,882	906,394
% with co-occurring SUD		25	33	21	23	—	23
% with study mental health diagnoses	Schizophrenia	—	5	1	1	—	2
	Bipolar I disorder	7	—	3	1	—	3
	PTSD	9	15	—	10	—	11
	MDD	6	12	17	—	—	15
% with other mental health diagnoses		42	61	46	69	55	53
% with physical health comorbidities	None	49	53	51	47	49	50
	1	30	28	28	29	29	28
	2+	21	18	21	24	22	22

The last column of Table 3.3 shows, for example, that 50 percent of the FY 2008 study cohort had at least one physical comorbidity, and 53 percent had evidence in their VHA utilization files of other mental health diagnoses not included in the 38 study-relevant ICD-9-CM diagnosis codes (such as generalized anxiety disorder (ICD-9 code 300.02), depressive disorder not elsewhere classified (ICD-9 code 311), and unspecified psychosis (ICD-9 code 298.9)).
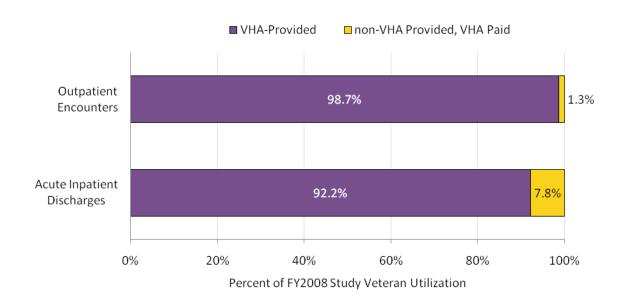
We obtained estimates of veterans' physical and mental health functioning from the veteran survey, as measured by the VR-12 Mental Component Summary (MCS) and Physical Component Summary (PCS) scores. The MCS and PCS are norm-based and range from 0 to 100, where 100 denotes the best health status and 50 denotes the mean score of the 1990 U.S. population. Study veterans reported a mean MCS score of 35.4 (SD = 13.1) and a mean PCS score of 31.5 (SD = 12.0), indicating substantial impairment.

To provide context, we note that the Veterans Health Study found a mean VR-36 MCS score of 47.8 and PCS score of 37.1 among ambulatory-care patients (Kazis et al., 1999), and the 1999 National Health Survey of Veterans found an average VR-36 MCS score of 35.9 and PCS score of 35.9 among veterans with depression (Gage et al., 2003).

UTILIZATION AND COSTS[20]

The VA provides care directly to veterans and pays for care delivered by non-VA providers. In FY 2008, more than 90 percent of total VA costs for both physical and mental health care were attributable to VA-provided services and, as shown in Figure 3.4, the large majority of FY 2008 care utilized by study veterans was provided by the VA.[21] The rest of this chapter focuses on VA-provided care and the associated costs.

Figure 3.4. FY 2008 Study Veteran Utilization Provided or Paid for by the VA

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[20] Our utilization and cost methodology is described in Chapter 2.

[21] Figure 3.4 focuses on outpatient encounters and acute inpatient discharges, which jointly represent 88 percent of health care costs for study veterans.

Overall, 41 percent of the FY 2008 study veterans received at least one psychotherapy visit[22] during the study period, almost three-quarters (71 percent) received at least one psychosocial visit,[23] and about the same proportion (72 percent) received at least one 30-day prescription of psychopharmacotherapy.[24] A psychosocial visit is any individual or group clinical encounter where psychosocial concerns are discussed or addressed and includes all psychotherapy visits. Cohort veterans had an average of 11.9 mental health outpatient encounters and 22.8 non–mental health outpatient encounters, and 0.14 mental health inpatient episodes and 0.21 non–mental health inpatient episodes in 2008. Table 3.4 shows utilization rates for veterans in each diagnostic cohort.

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[22] Psychotherapy visits are any diagnosis-related clinic encounters for which the following Current Procedural Terminology (CPT) codes are present:

- 90806, 90807, 90808, 90809: Office or Other Outpatient Facility, Insight Oriented, Behavior Modifying and/or Supportive Psychotherapy, excluding psychotherapy with medical evaluation and management services taking less than 30 minutes.

- 90812, 90813, 90814, 90815: Office or Other Outpatient Facility, Interactive Psychotherapy (these codes most likely apply to psychotherapy with children but are retained for evaluation purposes in case they may be used with adult patients), excluding psychotherapy with medical evaluation and management services taking less than 30 minutes.

- 90845: Psychoanalysis

- 90853: Group Psychotherapy (other than of a multiple-family group).
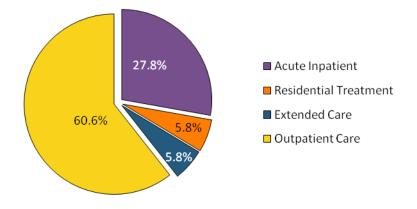
- 90857: Interactive Group Psychotherapy (Note: these codes most likely apply to psychotherapy with children but will be retained for evaluation purposes in case they may be used with adult patients.)

[23] Psychosocial visits are defined as one or more diagnosis-related visits with the following mental health stop codes:

- All stop codes beginning with "5," excluding 523, 533, 538, and 565.

Exclude those visits with the following CPT codes: 90862 (Medication management without psychotherapy), 90870 (electro-convulsive therapy), and any encounters with CPT codes that do not begin with "9" or "H."

[24] Psycho-pharmacotherapy is defined as at least one 30-day prescription for alcohol deterrents, anticonvulsants, antidepressants, antipsychotics, lithium salts, or Prazosin.

Table 3.4. FY 2008 Study Veteran Utilization Rates, by Diagnostic Cohort

	All (N = 906,394)	Schizo-phrenia (N = 80,914)	Bipolar I disorder (N = 65,090)	PTSD (N = 403,593)	MDD (N = 145,915)	SUD All (N = 372,069)	Co-occurring Disorder (N = 161,187)	SUD Only (N = 210,882)
% receiving any outpatient psychosocial visits during study period	71	80	84	79	82	64	90	43
% receiving any outpatient psychotherapy visits during study period	41	37	45	49	46	40	61	23
% receiving any mental health pharmacotherapy during study period	72	86	91	78	89	59	87	38
Average number of mental health inpatient discharges (acute + residential + extended)	0.14	0.3	0.28	0.09	0.15	0.28	0.47	0.13
Average number of non–mental health inpatient discharges (acute + residential + extended)	0.21	0.22	0.19	0.16	0.22	0.28	0.26	0.29
Average number of mental health outpatient encounters	11.9	22.0	15.3	11.1	10.8	16.4	25.7	9.4
Average number of non–mental health outpatient encounters	22.8	22.3	23.6	22.2	25.5	24.6	28.1	22.0

About 60 percent of study cohort costs were attributable to outpatient care and 40 percent to inpatient care (including acute inpatient, residential treatment, and extended care), as shown in Figure 3.5. The FY 2008 study veterans had a total of 267,461 acute inpatient discharges and 31,482,671 outpatient encounters.

Figure 3.5. FY 2008 Study Veteran Total Costs, by Utilization Category

Legend:
- Acute Inpatient
- Residential Treatment
- Extended Care
- Outpatient Care

Pie chart values: 27.8%, 5.8%, 5.8%, 60.6%

While veterans in the FY 2008 study cohort represent 16.5 percent of all veterans who used VA services, they accounted for 34.4 percent of the costs due to much higher utilization of both inpatient and outpatient services (Figure 3.6). In FY 2008, study veterans had 4.8 times as many acute inpatient discharges per thousand veterans as non-study veterans (349.8 discharges per thousand versus 73.1 per thousand). Study veterans also had 3.3 times as many outpatient encounters as non-study veterans (an average of 34.7 versus 10.3).
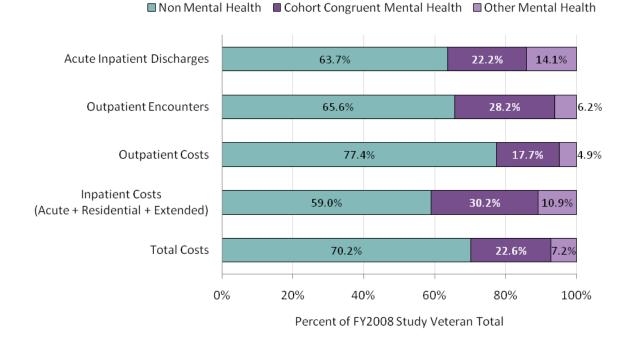
Figure 3.6. FY 2008 Study Veterans Utilization and Cost as a Proportion of VHA Total

Number of Veterans: 16.5%
Inpatient Discharges (Acute + Residential + Extended): 48.5%
Outpatient Encounters: 39.9%
Outpatient Costs: 32.7%
Inpatient Costs (Acute + Residential + Extended): 37.4%
Total Costs: 34.4%

Percent of FY2008 VHA Total

In FY 2008, VA health care costs totaled nearly $36 billion, and the VA served roughly 5.5 million veterans. The cost for the health care utilization of the FY 2008 study cohort amounted to just over $12 billion. Outpatient costs were more than twice as much as inpatient costs for study veterans; inpatient

costs for study veterans totaled $3,417,795,183, while outpatient costs totaled $7,454,833,686. The average cost per FY 2008 study veteran was $13,566, compared with an average cost of $5,090 for each non-study veteran—making study veterans 2.7 times more expensive than non-study veterans, on average. Health care costs were also disproportionately spread across study veterans. For example, the most costly 36 percent of study veterans were responsible for 80 percent of the total inpatient costs of study veterans (acute + residential + extended). Similarly, the most costly 44 percent of study veterans were responsible for 80 percent of the total outpatient costs of study veterans.

Utilization and Costs by Utilization Category
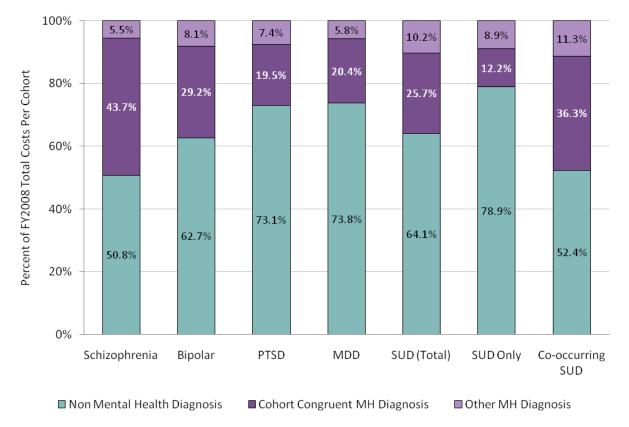
Figure 3.7 shows the distribution of utilization and costs by utilization category. "Cohort Congruent Mental Health" includes utilization for the veteran's cohort diagnosis, based on the primary diagnosis code. For example, if a veteran in the PTSD cohort had an outpatient visit with a primary diagnosis of PTSD, the associated costs would fall into this category. For veterans with co-occurring SUD, the Cohort Congruent Mental Health category includes utilization for both disorders. "Other Mental Health" includes utilization related to any other mental health diagnosis, including other study-relevant diagnoses and all other diagnoses found in the Diagnostic and Statistical Manual of Mental Disorders, DSM-IV. For example, if a veteran in the PTSD cohort had an acute inpatient discharge with a primary diagnosis of drug-induced mental disorders, the associated costs would fall into this category. "Non–Mental Health" includes all remaining utilization, such as outpatient visits with a primary diagnosis of hypertension.
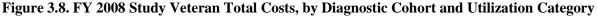
Figure 3.7. FY 2008 Study Veteran Utilization and Cost, by Utilization Category

Figure 3.8 shows that most of the FY 2008 study cohort utilization and costs are attributable to services with non–mental health primary diagnoses. The most common of these were essential hypertension (32 percent of study veterans) and diabetes mellitus (19 percent of study veterans). Across utilization and cost categories, between 18 and 30 percent of resources were attributable to services with cohort-congruent

mental health primary diagnoses. Figure 3.8 shows the distribution of costs across these categories for veterans in each cohort.

Figure 3.8. FY 2008 Study Veteran Total Costs, by Diagnostic Cohort and Utilization Category
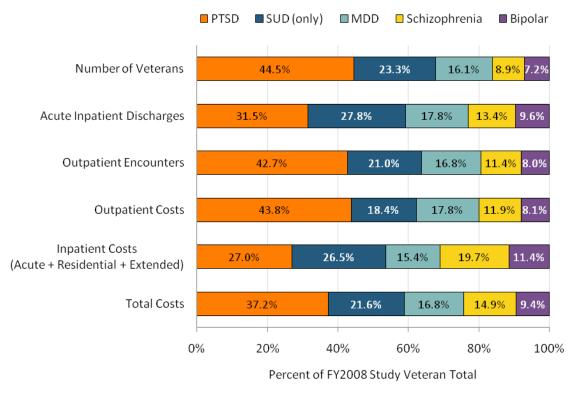
For veterans in each of the diagnostic cohorts, the majority of health care costs are attributable to services with non–mental health primary diagnoses. This pattern is most pronounced for veterans in the SUD-only cohort and least pronounced for those in the schizophrenia cohort. Veterans with co-occurring SUD are included in the SUD (Total) category, the Co-occurring SUD category, and their respective mental health diagnostic cohort.

Utilization and Costs by Cohort
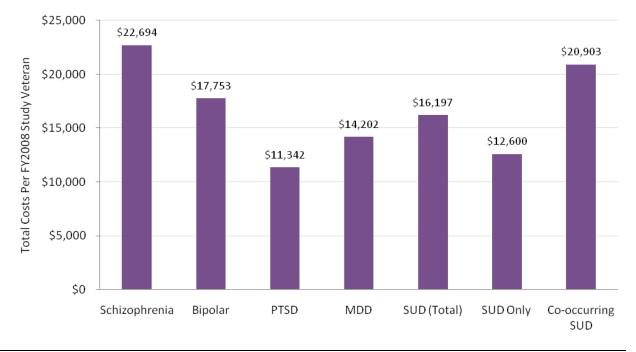
Figure 3.9 shows the distribution of FY 2008 study-cohort utilization and costs (for both mental health and non–mental health) across each diagnostic cohort.

Figure 3.9. FY 2008 Study Veteran Utilization and Cost, by Diagnostic Cohort, as a Proportion of FY 2008 Study-Veteran Total

Veterans in the PTSD and SUD-only cohorts were responsible for the largest share of utilization and costs. However, these data largely reflect the relative size of each diagnostic cohort rather than the intensity of resource use. Figure 3.10 shows the total costs *per study veteran* for each diagnostic cohort.

Figure 3.10. Total Cost per FY 2008 Study Veteran, by Diagnostic Cohort

Veterans in the schizophrenia and co-occurring SUD cohorts had the highest per-veteran cost. Note that veterans with co-occurring SUD are included in three of the bars above: the SUD (Total) category, the Co-occurring SUD category, and their respective mental health diagnostic cohort.

SUMMARY

The FY 2008 study cohort represents a large and growing set of veterans with significant chronic general medical problems in addition to their mental illness. They also often have additional SUD comorbidity. This results in high utilization of health care resources and attendant high costs. Veterans in the study cohort represented only 16.5 percent of the approximately 5.5 million veterans who used VA services in FY 2008 but accounted for 48.5 percent of inpatient discharges and, at an average cost of $13,566, 34.4 percent of VA health care spending. This high burden of both general medical problems and mental illnesses underscores the need for coordinated care across providers for the delivery of patient-centered care for all conditions experienced by veterans. Significantly, the study cohort grew by 38.5 percent between FY 2004 and FY 2008, with the greatest growth in veterans with PTSD. If this expensive cohort continues to grow, it will likely further increase VA health care expenditures.

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CHAPTER 4. THE STRUCTURE AND CAPACITY OF VA MENTAL HEALTH CARE

To meet the mental health care needs of veterans, the VA maintains the largest integrated health care system in the United States (Congressional Budget Office, 2007; National Center for Veterans Analysis and Statistics, 2010). The VA operates more than 150 VAMCs, 780 CBOCs, 230 Vet Centers, and 130 nursing homes; it employs more than 200,000 full-time-equivalent employees; and it has an annual budget of $44.5 billion.

The first step in our evaluation focused on the structure and capacity of this system. As discussed above, our evaluation framework is premised on the view that patient outcomes are influenced by both the *structure* of care (e.g., type/level of staffing, how many patients can be served, hours of operation, provider workloads, and availability of EBPs) and the *process* of care (e.g., whether and how EBPs are implemented and the frequency and timing of services) (Donabedian, 1966, 1980; Donabedian and Bashur, 2002). To collect information about the VA's care structure, the study team conducted comprehensive surveys of VA facilities in May 2007 and October 2009.

POLICY CONTEXT OF FACILITY SURVEYS

In 2004, the VA MHSP presented a new approach to mental health care in the VA that focused on recovery rather than pathology and integrated mental health care into overall health care for veteran patients. This 5-year action plan included more than 200 initiatives, as well as timetables for implementation and offices responsible for each action item. A number of these action items were specifically aimed at raising general awareness of the importance of mental health, eliminating disparities in the availability and quality of mental health services for veterans, and providing comprehensive mental health care services to veterans with mental illness.

Since 2005, Congress has used Mental Health Enhancement Initiatives (MHEI) funding to implement the objectives of the MHSP and later to implement the policies detailed in the *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook*, released in 2008. In FY 2005, the first year of the evaluation reported here, the VA allocated about $88 million to MHSP initiatives, including more than $5 million for substance abuse services, nearly $10 million for compensated work therapy (CWT), and a combined $18 million for PTSD services and OEF/OIF care. In FY 2006, the VA allocated an additional $158 million to MHSP initiatives, including $4 million for MHICM teams, $6 million for psychosocial and recovery-oriented services, a combined $10 million for telemental health programs and web-based support tools, $17 million for CBOC mental health services, $17 million for substance abuse services, a combined $19 million for PTSD services and OEF/OIF care, and $65 million to continue initiatives funded in the previous year.

The *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook* marked a significant change in policy between the administration of the first facility survey in 2007 and the second in 2009. Since the size and organization of services within PFSAs vary, the goal of the handbook is to set clear standards for the availability of services at VAMCs and CBOCs by specifying which services must be offered locally and which must be made available through other routes (e.g., contract, fee-basis, or telemedicine), based on size of the population served by the CBOC. By requiring that these services be available, the VA seeks to ensure that veterans receive the same levels of care, regardless of their geographic location. We highlight specific requirements of the handbook in the relevant sections below.

The remainder of this chapter summarizes key structure and capacity findings from our analyses of data from the two surveys during this time of unprecedented change.

FACILITY SURVEY OVERVIEW

The targeted respondent for the survey at each PFSA was the supervising chief of mental health or a functional equivalent.[25] A paper copy of the survey was mailed to each respondent; however, the final data were collect through a web-based survey. The respondents had about one month to complete the survey, and collecting the information typically took 13 to 20 hours. Since some questions were quite detailed, respondents were encouraged to consult with other staff members to provide accurate and complete responses.

Because we did not conduct site visits, responses were self-reported, and, like all self-reported data, they may be subject to biases. Social-desirability bias may be an issue when systems of care know they are being monitored, leading to overestimates of the availability or characteristics of EBPs. Other biases may result from misinterpretation of the survey questions. We attempted to make the terms used in the survey unambiguous, but there may have been room for interpretation.

The facility survey was designed to address three overarching questions: (1) What is the availability of mental health services in VA facilities? (2) To what extent are EBPs available in VA facilities? (3) What are the characteristics of the VA mental health workforce? Questions in both facility surveys focused on the availability of basic mental health services (services that should be available to all veterans with mental illness, such as inpatient hospitalization, pharmacotherapy, or psychotherapy), specialized mental health services (services that target a specific population or diagnostic category, such as veterans with PTSD or veterans with SUD, and that may require specialized training), and 12 specific EBPs (listed in Table 4.1 on p. 49). Our rationale for including these 12 EBPs is described in Chapter 3 of the Phase 1 Report (Pincus et al., 2008, May). To collect evidence about the VA workforce, we asked questions about recruitment and retention of key mental health staff (psychiatrists, psychologists, social workers, prescribing nurses, nonprescribing nurses, physician assistants, addiction therapists, and vocational-rehabilitation counselors). We also assessed the rate of board certification among physicians practicing psychiatry.

The number of PFSAs that responded across survey items differed among survey items about particular practices. Unless otherwise noted, reports of fewer PFSAs than would be expected based on other responses about a practice reflect missing data (i.e., survey respondents did not complete the item).

REPORTED AVAILABILITY AND ACCESSIBILITY OF MENTAL HEALTH SERVICES

One of the central goals of the MHSP is to provide a full continuum of care to veterans who have mental illness. In this section, we present results on the reported availability of basic components of the continuum of mental health care (acute inpatient beds, crisis-management services, psychotherapy, and pharmacotherapy by a mental health provider), as well as services tailored to specific populations (treatment for PTSD and SUD and services for women veterans). We focus on these services either because they are among the most frequently used basic mental health services (e.g., psychotherapy, pharmacotherapy) or because they are particularly important for the veteran population (e.g., suicide prevention). The Phase 1 report and the facility survey reports (Pincus et al., 2008, May; Woodroffe et al., 2010, October) describe the availability of all the mental health services covered in the surveys.

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[25] This term refers to an area of non-overlapping geographic responsibility anchored, in most cases, by a VA medical center and supporting CBOCs. Our methods for defining the PFSAs are explained in detail in Chapter 1 of the 2007 and 2009 facility survey reports (Pincus et al., 2008, May; Woodroffe et al., 2010, October).

Acute Psychiatric Inpatient Beds

Although the shift toward community mental health care has led to reductions in the number of psychiatric beds nationwide, maintaining adequate capacity to serve veterans who need inpatient services remains an important concern of both the MHSP and the *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook*.

We found that in both May 2007 and October 2009, 81 percent of PFSAs reported at least some capacity for acute mental health inpatient treatment. In addition to the inpatient beds reported, some PFSAs have contractual arrangements with community providers to serve veterans who require inpatient psychiatric care; however, our survey did not assess these alternative arrangements. We note that care for 93.5 percent of the FY 2008 acute inpatient discharges with a mental health diagnosis was provided directly by the VA.

We also compared rates of bed availability in the VA with rates in the non-federal sector. We first computed rates of acute mental health bed availability in the VA, using the number of beds in a PFSA as the numerator and the number of enrolled veterans in the PFSA as the denominator. We then used data on non-federal psychiatry beds[26] from the American Hospital Association Survey (American Hospital Association, 2006, 2009) and population estimates (less the number of enrolled veterans) from the U.S. Bureau of the Census to compute a comparable ratio for the non-federal sector within the same geographic area as each PFSA.[27] We found that almost two-thirds of the PFSAs had greater bed availability than the corresponding non-federal sector in both May 2007 (65 percent) and October 2009 (64 percent). This analysis included PFSAs that did not report any capacity for acute inpatient care. While these statistics provide a useful comparison with the private sector, it is important to note that the ratios do not indicate the appropriate number of beds for a given population size. It is also important to note that the comparison with the private sector might yield different results if one looked at the ratio of beds to individuals at risk (i.e., those with mental health diagnoses).

Mental Health Crisis Management

We also surveyed facilities about several aspects of services for veterans with mental illness in crisis situations, including emergency-department care and suicide-prevention programs, both of which are essential components of the continuum of mental health care. These services are especially critical given that an estimated 5,000 veterans, many of whom are veterans of the Iraq and Afghanistan wars, commit suicide each year (Office of the Inspector General, 2007). In 2007, the last year data on suicides were available from the VA, the suicide rate for veterans ages 18 to 29 was 37.1 per 100,000, more than 80 percent higher than the rate for the civilian population and the active-duty military (Bernton, 2010; Keteyian, 2007).

Availability of Emergency Departments

Of the PFSAs surveyed in October 2009, 83 percent reported having an emergency department, identical to the rate observed in 2007. Of the 17 percent of PFSAs that reported no VA-operated emergency department in 2009, 91 percent reported a standing arrangement with another local facility to handle emergencies, an increase over 2007, when 83 percent reported similar agreements. In 2009, less than 2 percent of all PFSAs reported not having emergency services, i.e., the absence of an emergency department in their facilities or a standing arrangement with another local facility to handle emergencies.

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[26] Non-federal psychiatry beds are beds operated by state, local, and private entities reported by facilities answering the American Hospital Association Survey. The total does not include military or VA beds.
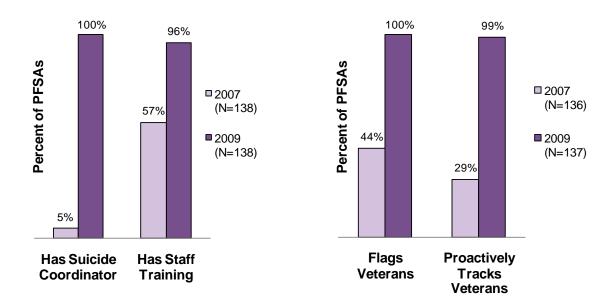
[27] Additional details on the methodology are provided in Chapter 2 of the facility survey report.

Suicide Prevention

Reduction of the suicide rate among veterans is a key goal of the VA. The *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook* requires the presence of a suicide-prevention coordinator at each VAMC. In October 2009, nearly all PFSAs (99 percent) reported having suicide-prevention coordinators on staff. This is an extraordinary increase from May 2007, when only 5 percent of PFSAs reported having any on staff (Figure 4.1). The survey also asked respondents whether they required their staff to have training in suicide-prevention protocols. Between May 2007 and October 2009, the number of PFSAs reporting suicide-prevention training for at least some staff increased from 57 percent to 96 percent. In addition, we asked each PFSA whether it had "standardized protocols in place for the flagging and proactive tracking by a designated staff member of . . . suicidal veterans." In October 2009, all PFSAs reported having policies for flagging, and nearly all (99 percent) reported having policies for proactively tracking veterans who express suicidal thoughts. These percentages are twofold and threefold increases, respectively, over the percentages reported in 2007. Results from the May 2007 survey indicated that 44 percent of the PFSAs reported having policies for flagging veterans who express suicidal thoughts, and 29 percent had policies for proactively tracking them (Figure 4.1).

Figure 4.1. Suicide Prevention Services and Policies on Expressed Suicidal Thoughts
(reported presence of a suicide-prevention coordinator and required training in suicide prevention, May 2007 (N = 138 PFSAs) and October 2009 (N = 138 PFSAs); policies for flagging and tracking veterans who express suicidal thoughts, May 2007 (N = 136 PFSAs) and October 2009 (N = 137 PFSAs)

Psychotherapy and Pharmacotherapy

The VA has prioritized expanding the availability of mental health services in order to provide services in places and at times that are as convenient as possible for the majority of veterans. Therefore, we asked about the availability, both during and after clinic hours, of two basic mental health services: psychotherapy by a mental health provider and pharmacotherapy by a mental health provider (psychiatrist, psychiatric nurse practitioner, or psychiatric physician assistant, as opposed to pharmacotherapy by a primary care provider). We defined "regular clinic hours" as "Monday thru Friday,
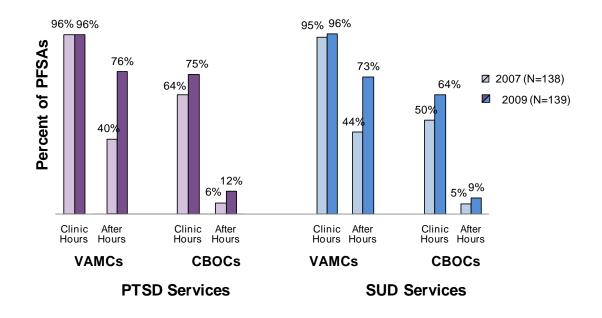
roughly 8am–4:30pm" and "after-clinic hours" as "evening or weekend hours"; we specifically excluded on-call services. The results are shown in Figure 4.2.
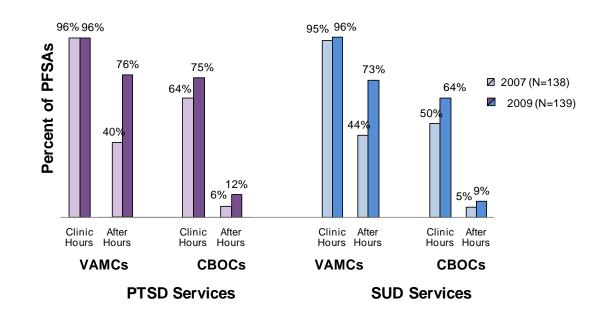
In October 2009, the reported availability of psychotherapy and pharmacotherapy during clinic hours remained high at both VAMCs and CBOCs (greater than 85 percent for both services). The surveys also revealed increases in the percentage of locations with after-hours care. For VAMCs, reported availability doubled from 2007 to 2009 for psychotherapy (36 percent versus 81 percent) and pharmacotherapy (33 percent versus 65 percent). Although the *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook* requires after-hours availability only at very large CBOCs (those seeing more than 10,000 unique veterans per year), after-hours services are encouraged wherever possible. The percentage of CBOCs reporting availability of after-hours care roughly tripled from 2007 to 2009 but remained at less than 15 percent for both psychotherapy (14 percent) and pharmacotherapy by a mental health provider (10 percent).

Figure 4.2. Reported Availability of Psychotherapy and Pharmacotherapy Services at VAMCs and CBOCs, May 2007 (N = 138 PFSAs) and October 2009 (N = 139 PFSAs)

PTSD and SUD Treatment Services

Figure 4.3 shows the availability of specialized mental health services for PTSD and SUD during and after regular clinic hours at both VAMCs and CBOCs across the PFSAs surveyed. Specialized services are those directed at a defined population and that may require particular competencies. The percentage of VAMCs that reported offering specialized PTSD and SUD treatment services during clinic hours remained high (96 percent for each service in October 2009). The percentage of CBOCs that reported offering these services during clinic hours increased from 64 percent to 75 percent for PTSD treatment services and from 50 percent to 64 percent for SUD treatment services. The percentage of facilities reporting after-hours services nearly doubled for both VAMCs and CBOCs. The proportion of VAMCs reporting PTSD treatment services increased from 40 percent in May 2007 to 76 percent in October 2009, and VAMCs reporting SUD treatment services increased from 44 percent to 73 percent. For CBOCs, there was an increase in after-hours care, but the percentages remained much lower than at VAMCs: from 6 percent in May 2007 to 12 percent in October 2009 for PTSD treatment services, and from 5 percent in May 2007 to 9 percent in October 2009 for SUD treatment services.
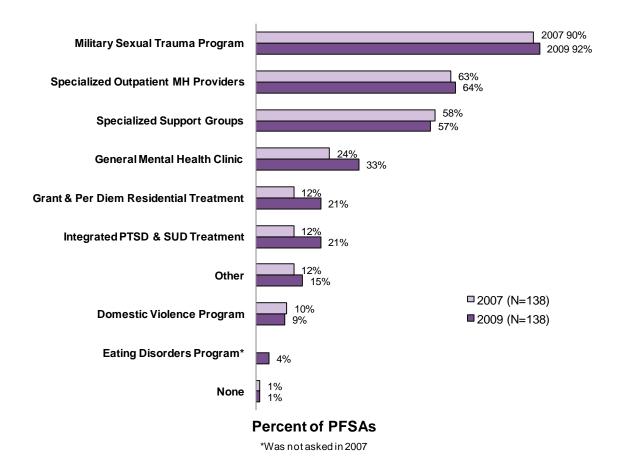
Figure 4.3. Reported Availability of PTSD and SUD Treatment Services at VAMCs and CBOCs, May 2007 (N = 138 PFSAs) and October 2009 (N = 139 PFSAs)

Services for Women Veterans

As of 2010, women veterans made up approximately 8 percent of the total U.S. veteran population (Department of Veterans Affairs Office of Policy and Planning, 2007). Although women are also served through general mental health programs, enhancing mental health services specifically for women veterans and services for which women account for a large proportion of the utilization is a goal of the VA. Special programs for women veterans were in different stages of development across PFSAs at the time of the October 2009 survey. Military sexual trauma programs were reported to be available in 92 percent of PFSAs (compared with 90 percent in May 2007), specialized support groups for women were reported at 57 percent of PFSAs (58 percent in 2007), and domestic-violence programs were reported at 9 percent of PFSAs (10 percent in 2007). There was little change in the reported availability of most of the programs about which we asked. However, the reported availability of grant and per diem residential treatment[28] nearly doubled from 2007 to 2009 (12 percent versus 21 percent), as did that of integrated PTSD and SUD treatment (12 percent versus 21 percent) (Figure 4.4).

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[28] The VA Homeless Providers Grant and Per Diem Program helps fund community agencies providing services to homeless veterans.
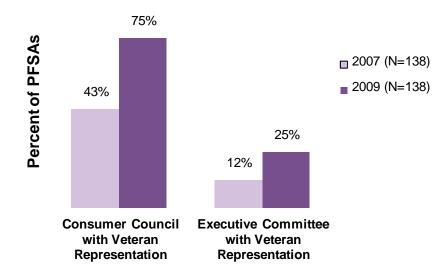
Figure 4.4. Reported Availability of Mental Health Services for Women Veterans, by PFSA, May 2007 (N = 138 PFSAs) and October 2009 (N = 138 PFSAs)

Percent of PFSAs

*Was not asked in 2007

Mental Health Consumer Councils and Mental Health Executive Committees

The *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook* strongly encourages PFSAs to develop a mental health consumer council that has a direct communication link to the PFSA's leadership, with the expectation that these councils will provide patients a channel through which to give feedback. The proportion of PFSAs reporting a mental health consumer council increased from 43 percent in May 2007 to 75 percent in October 2009. All of the consumer councils had veteran representation. Another approach to help establish a recovery orientation for mental health care is the inclusion of veterans with mental illness on mental health executive committees, which are composed of senior leaders who set mental health policy for the PFSA. In May 2007, 12 percent of PFSAs reported the presence of veterans with mental illness on their mental health executive committees, and 25 percent reported this in October 2009 (Figure 4.5).

Figure 4.5. Reported Mental Health Consumer Council and Mental Health Executive Committee Presence, by PFSA, May 2007 (N = 138 PFSAs) and October 2009 (N = 138 PFSAs)

Drive Times from Veterans' Residences to Mental Health Services

We performed a series of analyses for two basic services (psychotherapy and pharmacotherapy by a mental health provider) and two specialized services (PTSD treatment and SUD treatment) to determine minimum drive times between a veteran's residence and the nearest VA point of care providing the service. Because the VA's drive-time standards are based on a rubric that is not easily translated into counties and zip codes—the most specific geographic identifiers we have for our cohort—we were unable to compare our computed drive times against these standards. We did, however, compare the nationwide drive times at the times of the two surveys.

We began by identifying the target populations for the services, recognizing that the services are unlikely to be needed by every veteran in these target populations. For psychotherapy and pharmacotherapy, the target population included veterans in all of our diagnostic cohorts. The target populations were restricted to veterans in the PTSD cohort for PTSD treatment services and to veterans in the SUD cohort (including those with a co-occurring psychiatric disorder) for SUD treatment services.
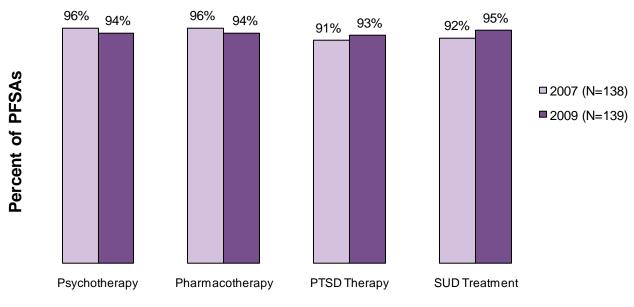
To identify the shortest travel time between the residence of a veteran in the target population and a service, we first calculated the shortest drive time between the veteran's home zip code and each of the VAMCs and CBOCs that reported providing the service of interest. We used standard geographic information system tools and software.[29] To calculate the average drive time for a PFSA, we summed the minimum drive times across veterans residing in that PFSA and divided by the number of veterans within the PFSA in the target population.[30] The analyses provide a limited perspective on access to these services, because they do not include services that may be provided via contract or fee-basis care. However, this exclusion likely has a small impact on the results, given that administrative data suggest

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[29] The methods for our computations are described in detail in Chapter 5 of the 2007 and 2009 facility survey reports.
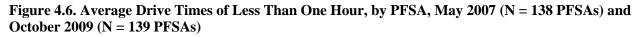
[30] We could not identify drive times for the less than 0.1 percent of our subjects who (1) lived on an island, (2) lived in a rural area with no roads connecting them to any facility providing the service, or (3) had zip codes we were unable to locate.

that only 1.3 percent of the FY 2008 study-cohort mental health outpatient encounters were paid for by the VA but not provided by it.

Figure 4.6 shows that, for all four services, veterans in more than 90 percent of the PFSAs had an average drive time of an hour or less to the services of interest. The percentages remained fairly constant between May 2007 and October 2009.

Figure 4.6. Average Drive Times of Less Than One Hour, by PFSA, May 2007 (N = 138 PFSAs) and October 2009 (N = 139 PFSAs)
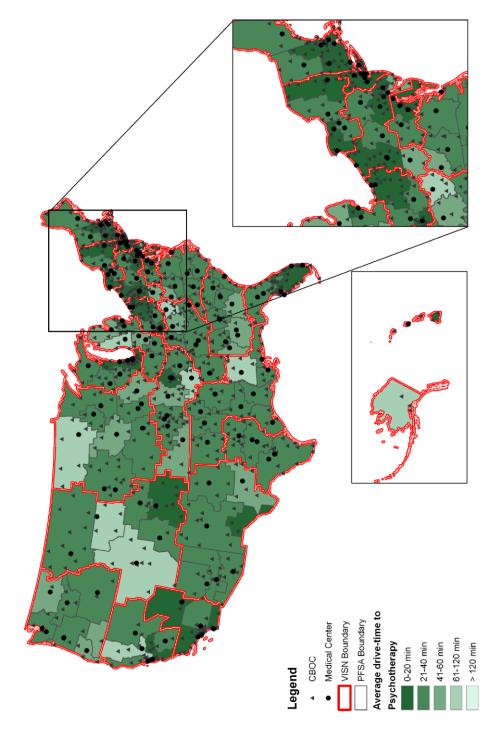
Figure 4.7 shows the average drive times between veterans in a PFSA and psychotherapy services in October 2009. Not surprisingly, we found a significant correlation ($r = 0.61$, $p < .0001$) between drive time and a PFSA's degree of urbanicity; the larger the percentage of counties in a PFSA that are rural (as defined by rural area commuting area codes), the more likely are veterans who live there to have longer drive times.

Figure 4.7. Average Drive Time Between Veterans in Any Diagnostic Cohorts and the Nearest VAMC or CBOC Reporting Offering Psychotherapy, October 2009 (N = 138 PFSAs) (excludes contract and fee-based care)

EVIDENCE-BASED PRACTICES

For both waves of the facility survey, the evaluation examined the extent to which VA mental health services offered EBPs across the VA. The survey also sought to describe the program characteristics associated with each practice. Program characteristics are important because in order for an EBP to result in improved mental health outcomes, the practice must be both available and delivered in a manner consistent with the published model. Together with a VA advisory group, the evaluation team reviewed the treatment literature, VA/Department of Defense (DoD) clinical practice guidelines, and other peer-reviewed sources and selected the 12 EBPs listed in Table 4.1 for inclusion in the evaluation.[31] Our analyses of the availability of EBPs within the VA and the characteristics of the programs through which they are delivered are summarized below.

Table 4.1. EBPs Evaluated in the Study

EBP	Applicable Population
Medication evaluation and management	All diagnostic cohorts
MHICM	Evidence base strongest for schizophrenia and bipolar I disorder
Supported employment	Evidence base strongest for schizophrenia, bipolar I disorder, and severe major depression with psychosis
Family psychoeducation	Evidence base strongest for schizophrenia and bipolar I disorder
CBT	Evidence base strongest for major depression and PTSD
Intensive outpatient treatment for SUD	SUD
Psychosocial interventions for SUD	SUD
Opiate-substitution maintenance therapy with methadone or buprenorphine	Patients with opiate dependence
Integrated dual-diagnosis therapy	Schizophrenia, bipolar I disorder, PTSD, and severe major depression comorbid with substance dependence
Specialized therapies for PTSD	PTSD
Treatment of refractory schizophrenia with clozapine	Schizophrenia
Electroconvulsive therapy	Evidence applies to severe depression or bipolar-disorder depression and some types of schizophrenia

Availability of Evidence-Based Practices

We considered an EPB to be available at a facility regardless of how it was provided, either directly by the VA or in the community through contract or fee-basis care. Figure 4.8 shows the rate at which each of the 12 practices was available across the facilities that participated in the survey.

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[31] The practices and the process by which they were selected are described fully in the 2007 facility survey report (Woodroffe et al., 2010, October).

By October 2009, 11 of the 12 EBPs about which we inquired were reported to be offered at more than 75 percent of the PFSAs. Only electroconvulsive therapy, which is expected to be available in every VISN but not necessarily at every PFSA, had a lower rate of availability. Moreover, there was substantial growth in the availability of practices between May 2007 and October 2009: the availability of opiate agonist therapy (with either buprenorphine or methadone) grew from 45 percent to 81 percent, and the availability of MHICM increased from 68 percent to 82 percent.

Our findings from the October 2009 survey indicate that a number of practices, including MHICM, family psychoeducation, opiate agonist therapy with methadone or buprenorphine, and integrated dual-diagnosis therapy, may warrant more widespread implementation. These practices were available at fewer than 90 percent of the PFSAs.
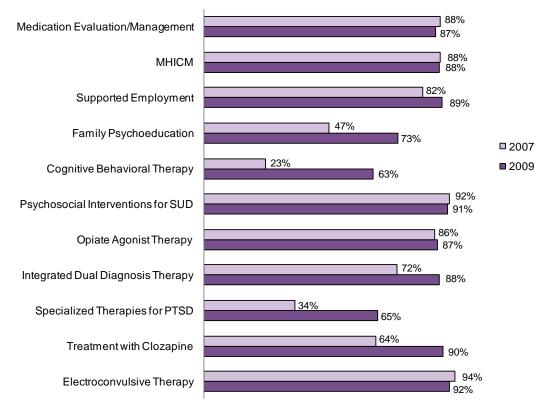
Figure 4.8. Summary of Reported EBP Availability, by PFSA, May 2007 and October 2009

Percent of PFSAs Offering the Evidence-Based Practice

The survey also collected data on estimated wait times for most of the 12 EBPs. Between May 2007 and October 2009, the VA adopted a policy of wait times of no more than 14 days for further evaluation and the initiation of mental health care for veterans new to mental health care (Henderson, 2008). While not all of the practices we describe are necessarily part of the initiation of mental health care, this standard provides a context in which to interpret the estimated wait times. We did not give PFSAs a standardized method with which to estimate wait times, and we do not know the process respondents at each PFSA used to estimate wait times. The percentage of PFSAs reporting wait times of two weeks or less increased or remained about the same for all EBPs (Figure 4.9). We present data for integrated dual-diagnosis therapy in detail as an example of our findings (Figure 4.10). We chose this EBP because care for
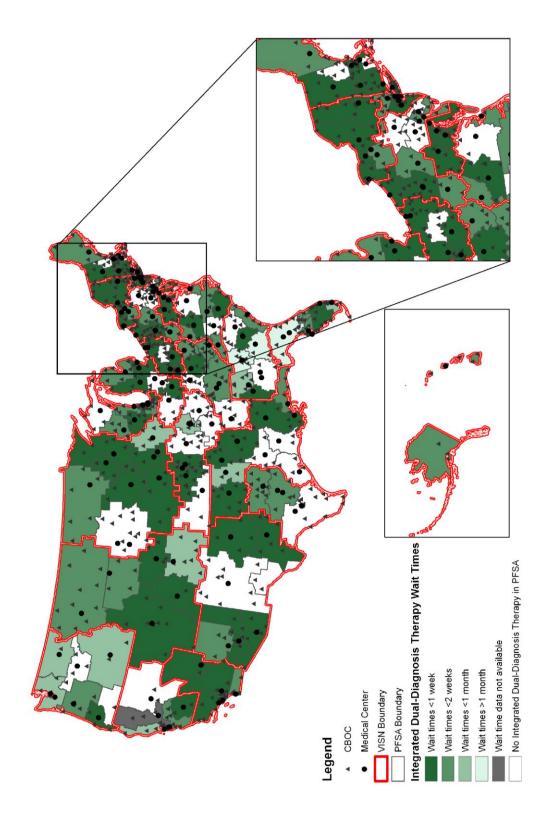
veterans with co-occurring psychiatric disorders and SUD is a priority for the VA and because there was substantial variation in both availability and wait times across PFSAs.

Figure 4.9. Summary of Reported EBPs with Wait Times of Two Weeks or Less, by PFSA, May 2007 and October 2009
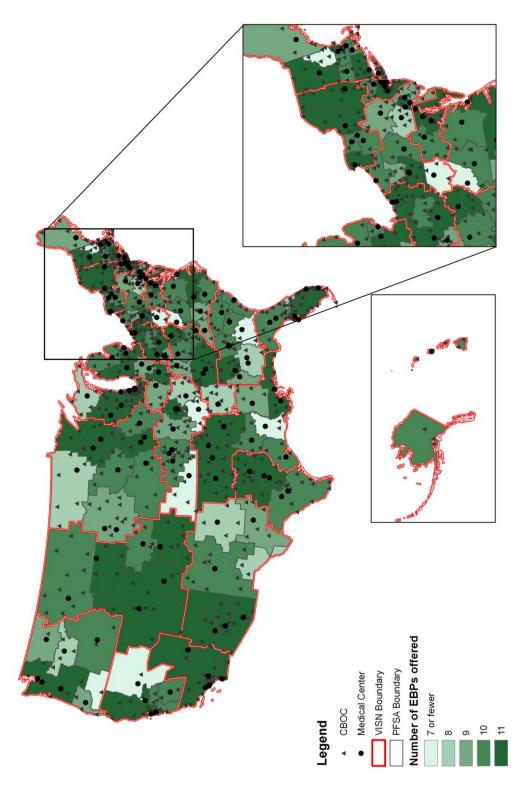
Percent of PFSAs with the EBP Reporting Wait Times 2 Weeks or Less

Figure 4.10. Reported Integrated Dual-Diagnosis Therapy Availability and Wait Times, by PFSA, October 2009 (N = 138 PFSAs)
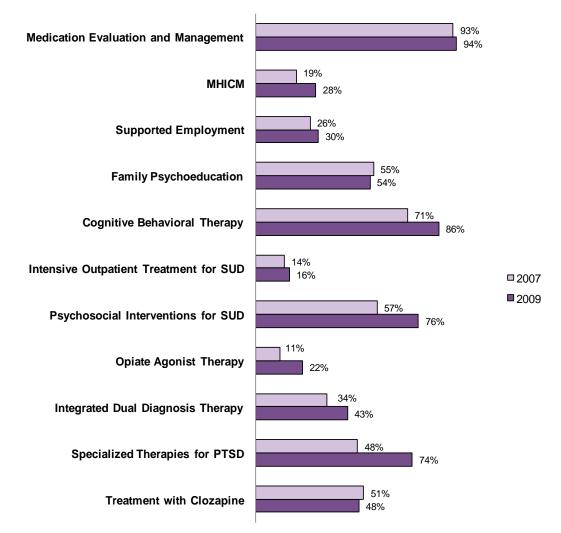
While it is important that individual EBPs be available to veterans, it is also important that a wide array of EBPs be available within a particular PFSA so that each veteran can receive the best care tailored to his or her particular clinical needs. To assess the breadth of practices offered within PFSAs, we created an index consisting of 11 of the 12 EBPs. We excluded electroconvulsive therapy, because it is not expected to be available within every PFSA. For each PFSA, we computed a score on this index ranging from 0, representing the lack of availability of any EBPs, to 11, representing the availability of every EBP about which we asked (except for electroconvulsive therapy). Figure 4.11 shows that by October 2009, 86 percent of PFSAs offered at least nine of the practices in our index. In May 2007, 67 percent of PFSAs offered nine or more. However, as of 2009, 14 percent still reported offering eight or fewer of the EBPs, indicating the need for further efforts to expand the range offered within some PFSAs.

Figure 4.11. Reported Number of Evidence-Based Practices Offered, by PFSA, October 2009 (N = 138)

Locations at Which EBPs Are Offered
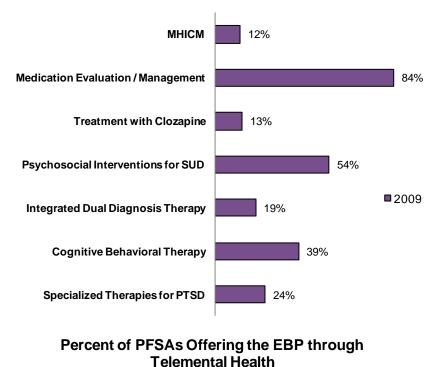
The VA delivers mental health services both at VAMCs and, because not all veterans live in close proximity to the metropolitan areas in which medical centers are located, through a distributed network of CBOCs. EBPs were, in general, more likely to be offered at medical centers than at CBOCs in both 2007 and 2009. However, from 2007 to 2009, reported availability of several EBPs at CBOCs increased. Figure 4.12. shows the rate at which each of the 12 EBPs was reported to be offered within a PFSA in at least one CBOC in both 2007 and 2009. Four practices (medication evaluation and management, CBT, psychosocial interventions for SUD, and specialized therapies for PTSD) were reported to be offered in at least one CBOC in at least three-quarters of PFSAs that offered the practice. However, while reported availability increased between 2007 and 2009, there is room for further growth in some EBP offerings at CBOCs.
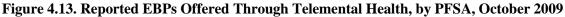
Figure 4.12. Reported EBPs Offered in at Least One CBOC, by PFSA, May 2007 and October 2009

Percent of PFSAs Offering the Practice in at Least One CBOC

Another method for providing services to veterans living in rural areas is through telemental health. However, telemental health is not applicable to all services. In October 2009, we asked about the

availability of telemental health for a subset of EBPs and found that the percentage of PFSAs reporting offering each practice via telemental health varied considerably by practice. Medication evaluation and management was most commonly reported to be available by this method (84 percent of PFSAs), while MHICM was reported to be available through telemental health in only 12 percent (Figure 4.13). We did not ask about telemental health services for EBPs in May 2007; therefore, we cannot comment on the change in availability over time.

Figure 4.13. Reported EBPs Offered Through Telemental Health, by PFSA, October 2009

MHICM: 12%
Medication Evaluation / Management: 84%
Treatment with Clozapine: 13%
Psychosocial Interventions for SUD: 54%
Integrated Dual Diagnosis Therapy: 19%
Cognitive Behavioral Therapy: 39%
Specialized Therapies for PTSD: 24%

■ 2009

Percent of PFSAs Offering the EBP through Telemental Health

Extent of Alignment Between the Potential Target Population and the Availability of EBPs

To identify priorities for the expansion of EBPs, we identified the size of the population of veterans who are potentially eligible for an EBP but who live in PFSAs where the practice is currently not reported to be offered. We used the diagnostic cohorts to estimate of the size of the target population that might benefit from receipt of an EBP, recognizing that the cohorts are defined by coded encounter diagnoses and do not necessarily represent diagnostic truth. Moreover, not every veteran within a particular cohort will want or need a specific practice, and veterans not in the cohort may benefit from receiving it. In most cases, there are specific criteria for determining appropriate eligibility, but since this determination generally requires an assessment of information not available in administrative data, we were not able to make judgments about individual veterans within the target population who met these criteria.

We identified a PFSA as providing an EBP if it reported providing the care either directly or through contract or fee-basis care. We then determined the number of veterans in the target population living in PFSAs that reported not providing the practice (using FY 2006 data for the May 2007 survey and FY 2008 data for the October 2009 survey). Note that this analysis does not address whether there is sufficient capacity to meet demand or the fidelity with which the intervention is delivered.

In October 2009, the potential EBP target population residing in PFSAs that did not offer the EBP ranged from 1,205 for opiate agonist therapy to 42,287 for electroconvulsive therapy (Table 4.2). Between May
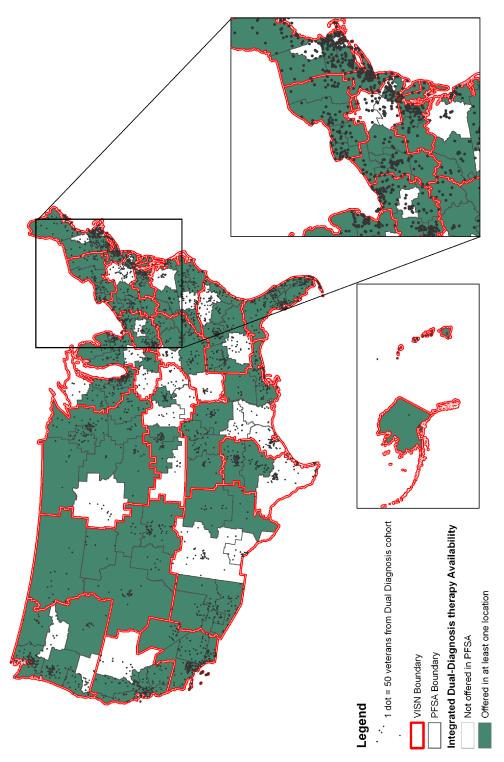
2007 and October 2009, the number of veterans residing in a PFSA that did not offer an EBP that might be of benefit decreased for eight of the nine practices (MHICM, supported employment, family psychoeducation, psychosocial interventions for SUD, opiate agonist therapy, specialized PTSD therapies, clozapine, and electroconvulsive therapy) and increased for one practice (integrated dual-diagnosis treatment). The largest improvement was for specialized PTSD therapies. The number of PFSAs offering these therapies increased from 119 to 136, and the number of veterans in the PTSD cohort living in a PFSA that did not offer the practice decreased by 86 percent, from 33,137 to 4,612. We reiterate that the cohort populations are estimates of the true population for the EBP and that not all veterans in the cohort may want or need the service.

These results indicate that reported access to almost all of the EBPs about which we inquired has improved. Chapter 5 of the facility survey report (Woodroffe et al., 2010, October) provides detailed maps for each practice, highlighting the geographic areas in which an EBP is and is not available, as well as the size of the veteran population. The map for integrated dual diagnosis is shown in Figure 4.14 as an example.

Table 4.2. Veterans in the Target Population Living in PFSAs Not Reporting the EBP, May 2007 and October 2009

EBP	Target Population	Number (%) of Veterans in Target Population Living in PFSAs Not Reporting Practice	
		2007 (N = 138)	**2009 (N = 139)**
MHICM	Schizophrenia and bipolar I disorder	24,985 (18%)	13,927 (9%)
Supported employment	Schizophrenia and bipolar I disorder	11,144 (8%)	4,909 (3%)
Family psychoeducation	Schizophrenia and bipolar I disorder	18,846 (14%)	15,569 (11%)
Psychosocial interventions for SUD	SUD	7,607 (2%)	5,026 (1%)
Opiate agonist therapy	Opiate abuse	3,976 (24%)	1,205 (7%)
Integrated dual-diagnosis therapy	Co-occurring SUD	27,203 (21%)	30,547 (19%)
Specialized therapies for PTSD	PTSD	33,137 (11%)	4,612 (1%)
Clozapine therapy	Schizophrenia	3,419 (4%)	3,171 (4%)
Electroconvulsive therapy	MDD	54,351 (42%)	42,287 (29%)

Figure 4.14. PFSAs Reporting Integrated Dual-Diagnosis Treatment in the Co-Occurring Disorders Cohort, VA Patient Population, October 2009 (N = 138 PFSAs) (includes contract and fee-based care)

Legend

1 dot = 50 veterans from Dual Diagnosis cohort

VISN Boundary
PFSA Boundary

Integrated Dual-Diagnosis therapy Availability

Not offered in PFSA
Offered in at least one location

Program Characteristics of EBPs

Making EBPs available is important, but to be effective they must be implemented with fidelity—that is, they must be delivered in a manner consistent with the way the intervention was delivered in the studies that formed the evidence base. We assessed the degree to which VA implementations of EBPs resemble gold-standard definitions in the following way: First, for two practices (supported employment and MHICM), we adapted a subset of items from formal fidelity-assessment tools drawn from the literature. However, the fidelity-assessment scales from which we adapted our survey items were designed for use by trained assessors in a site visit. Because we used only a subset of items in a web-based, self-report survey, our findings should not be interpreted as formal fidelity testing. Second, for a third practice, family psychoeducation, for which there are no well-accepted fidelity measures, we report on the presence of program features thought to be important. Third, we assessed the application of best-practice strategies from the Chronic Care Model, which identifies the essential elements of a health care system that encourage high-quality chronic-disease care, including self-management support, infrastructure to support the monitoring and tracking of care, and outcomes monitoring support.

Findings for MHICM, Supported Employment, and Family Psychoeducation

To assess the fidelity of delivery of MHICM across PFSAs, the survey included seven items from the Dartmouth Assertive Community Treatment Survey. In October 2009, the majority of PFSAs received "good" or "excellent" scores on five of the seven items. In the May 2007 survey, the majority of PFSAs received "good" or "excellent" scores for only four of the seven items. For supported employment, the survey included seven items from the Supported Employment Fidelity Scale. In both 2009 and 2007, the majority of PFSAs received "good" or "excellent" scores for six of the seven items. Although responses to the 2009 survey suggest that the implementation of MHICM and supported employment in the majority of PFSAs is consistent with "good" or "excellent" standards, there was variability across PFSAs.
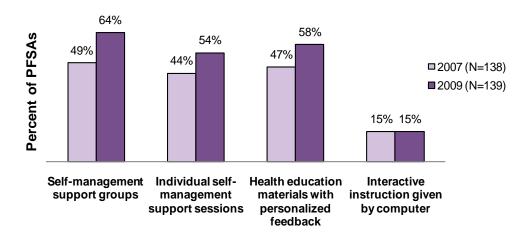
Although there is no fidelity scale associated with family psychoeducation, there is consensus about program features that distinguish an evidence-based family psychoeducation program and indicate whether or not it has been implemented with fidelity. Two of these features are the presence of a clinical administrator and the length of treatment. According to the 2009 survey, almost half of the PFSAs (43 percent) that offered family psychoeducation programs reported having clinical administrators, whereas roughly one quarter (26 percent) did so in 2007. The Schizophrenia Patient Outcome Research Team study found that treatments spanning at least nine months were most likely to be effective (Murray-Swank and Dixon, 2005), a finding that led to the recommendation that treatment duration be no less than nine months. In the 2009 survey, 29 percent of PFSAs reported offering treatment for at least nine months; in the 2007 survey, 35 percent of PFSAs reported providing treatment for nine months or more. Thus, the proportion of PFSAs that provided treatment for the recommended length decreased between 2007 and 2009.

Other Program Characteristics

The survey also included items related to the use of the Chronic Care Model (Wagner, 1998; Wagner et al., 2001), a set of basic elements for providing high-quality care to patients with chronic illness. Best practice strategies identified by the Chronic Care Model are particularly relevant to the VA, because the VA is responsible for providing longitudinal care—that is, care that begins during young adulthood and continues for the rest of the veteran's life. We asked about three elements of the model: provision of self-management support, infrastructure to support the monitoring and tracking of care, and use of clinical information systems to support outcomes monitoring. (It is important to note that some issues relating to care tracking and use of clinical information systems fall under the Office of Information and Technology and are not under direct VA management.)

Self-management support services help veterans and their families handle self-care tasks while ensuring that effective medical, preventive, and health maintenance interventions take place. As illustrated in Figure 4.15, in 2009, more than half of the PFSAs (64 percent) offered self-management support groups, 54 percent offered individual self-management support groups, and 58 percent offered health-education materials with personalized feedback; in 2007, less than half of PFSAs reported providing each of these services. In contrast, interactive instruction given by computer was offered by only 15 percent of PFSAs in both 2007 and 2009.

Figure 4.15. Reported Self-Management Support Services, by PFSA, May 2007 (N = 138 PFSAs) and October 2009 (N = 139 PFSAs)

Clinical information systems are critical components of the infrastructure necessary to monitor and track the care of individual patients, as these systems can provide data to aid in care planning and coordination, as well as reminders to clinical personnel of services needed by the patient. In 2009, only 35 percent of PFSAs reported having the ability to systematically "monitor and track the care of all veterans" with a specific mental health diagnosis—an increase from 2007, however, when 28 percent of PFSAs reported such a system. VA use of electronic medical records may, in some cases, facilitate the monitoring and tracking of patients but does not yet meet the intent of registries under the Chronic Care Model.

In addition to surveying for monitoring of individual patients, we asked PFSAs about the monitoring of mental health programs. In October 2009, the majority of PFSAs reported monitoring for provider-level practices (83 percent), program-level outcomes (88 percent), and patient-level outcomes (80 percent); these rates were similar to those reported in May 2007. We also asked the PFSAs that reported monitoring practices/outcomes how, if at all, they shared the information among practitioners. Sharing of information via the VA intranet for provider-level practices was reported by about three times as many PFSAs in 2009 as in 2007 (33 percent versus 11 percent), program-level outcomes (40 percent versus 11 percent), and patient-level outcomes (34 percent versus 14 percent), still a minority of PFSAs (Figure 4.16).
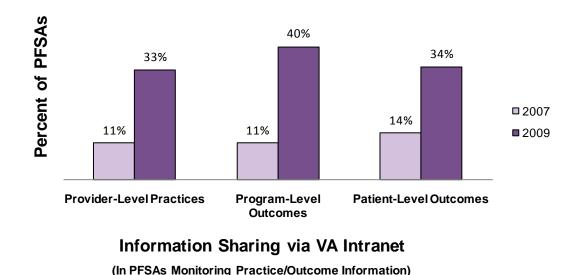
Figure 4.16. Reported Outcomes Information Sharing via the VA Intranet, by PFSA, May 2007 and October 2009

Information Sharing via VA Intranet
(In PFSAs Monitoring Practice/Outcome Information)

VA MENTAL HEALTH WORKFORCE CHARACTERISTICS

Like all health care organizations, the VA faces challenges in recruiting and retaining qualified mental health staff under competitive market conditions. The tremendous expansion in mental health programs undertaken by the VA requires recruiting even more candidates for additional clinical and support staff positions; we asked respondents about difficulties in recruiting and retaining eight different types of mental health staff: psychiatrists, psychologists, social workers, prescribing nurses, nonprescribing nurses, physician assistants, addiction therapists, and vocational-rehabilitation counselors. We also assessed rates of board certification among VA physicians practicing psychiatry.

Recruitment Difficulties

To identify areas in which labor shortages may hinder the VA's expansion of programs and services, we asked survey respondents from each PFSA whether they "have been unable to recruit appropriate candidates (due to a lack of acceptable applicants) for a period longer than 90 days after posting the position" in the 12-month period prior to the date of survey completion (May 2006–May 2007 or October 2008–October 2009). The survey item asked PFSAs to include contracted staff as well as VA direct hires in their answer but to exclude positions that were not filled because of hiring freezes or administrative limitations. We did not identify any regional pattern or pattern based on rural/urban location. Chapter 6 of the facility survey report (Woodroffe et al., 2010, October) presents national maps for each of the recruitment types. The national rates of reported recruitment difficulty are summarized in Table 4.3. In general, PFSAs reported fewer recruitment difficulties in October 2009 than in May 2007; only postings for psychologists were more likely to be reported to be unfilled in 2009 than in 2007. Unfilled position postings were most likely for psychiatrists in both 2007 (79 percent) and 2009 (71 percent). The VA was engaged in a large-scale expansion of capacity around the time of the first survey administration, so the observed decreases may be due to changing market conditions as well as to differences in the volume of positions being recruited.
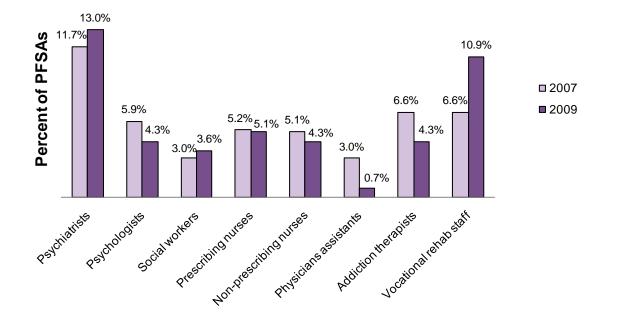
Table 4.3. PFSAs Reporting Difficulties Recruiting Within 90 Days of Position Posting in the Prior Year, by Staff Type, May 2007 and October 2009
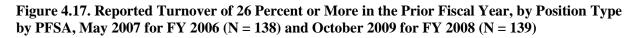
Staff Type	% of PFSAs Reporting Recruitment Difficulties	
	2007	**2009**
Psychiatrists	79 (N = 134)	71 (N = 133)
Prescribing nurses	65 (N = 110)	51 (N = 108)
Psychologists	39 (N = 131)	44 (N = 133)
Physician assistants	40 (N = 68)	32 (N = 69)
Social workers	25 (N = 134)	19 (N = 130)
Addiction therapists	19 (N = 102)	18 (N = 104)
Nonprescribing nurses	35 (N = 113)	17 (N = 114)
Vocational-rehabilitation staff	24 (N = 105)	15 (N = 102)

NOTE: The 2007 survey inquired about an additional position type, occupational therapists. In the revision for the second wave of the survey, this position type was dropped, because responsibility for hiring and retaining occupational therapists rests outside of the mental health service at most VAMCs.

Staff Retention

A series of questions on the retention of existing clinical staff asked survey respondents from each PFSA to identify the percentage of full- and part-time mental health clinical staff who were employed within the PFSA at the start of the fiscal year prior to the survey date (FY 2006 for the May 2007 survey and FY 2008 for the October 2009 survey) and separated from employment before the end of the fiscal year. Figure 4.17 summarizes changes over time for annual turnover of 26 percent or more. Reported turnover was highest for psychiatrists and vocational-rehabilitation staff in both 2009 and 2007; turnover increased for three position types (psychiatrists, social workers, and vocational-rehabilitation staff) and decreased for all other position types.

Figure 4.17. Reported Turnover of 26 Percent or More in the Prior Fiscal Year, by Position Type by PFSA, May 2007 for FY 2006 (N = 138) and October 2009 for FY 2008 (N = 139)

Psychiatrist Board Certification

Evidence on the relationship of physician board certification to clinical quality is mixed (e.g., Brennan et al., 2004), and board certification in a specialty provides no guarantee of physician quality. However, certification indicates that a physician has passed an external evaluation of clinical competency in his or her specialty and demonstrated a commitment to continuing medical education. In 2006, 62 percent of all U.S. self-identified psychiatrists (including VA physicians) were board certified, and in 2008, 64 percent were board certified (American Medical Association, 2008, 2010). Survey results indicate that VA psychiatrists exceeded the national average in rates of board certification: in May 2007, 79 percent were certified, and in October 2009, 75 percent were certified.

LIMITATIONS

Because the VA's expectations for the specific services that must be provided by or be available at VAMCs and CBOCs changed between survey administrations, we are unable to specify the degree to which VA expectations have been met. Instead, our goal is to describe the state of VAMCs and CBOCs as of October 2009 and how they had changed since May 2007. Additionally, although the *Uniform Mental Health Services in VA Medical Centers and Clinics Handbook* distinguishes between CBOCs of different sizes, our facility survey did not, and we are therefore able to report results only for CBOCs generally.

The facility survey data represent a nearly complete enumeration of the study population: Everyone who qualified to complete the survey did so, and the data received from respondents were nearly complete. However, it is important to recognize that the study team did not conduct site visits or ask veterans whether they had received the treatments. Thus, the findings presented in this chapter derive from self-reported data, and as such, their validity depends on the whether the respondents answered the questions accurately, truthfully, and in an unbiased fashion. As with all studies based on self-reported data, our evaluation of structure and capacity may have been influenced by social-desirability bias or the desire to

appear to be doing the right thing, leading to overestimates of the availability or characteristics of practices. However, in cases such as this, where the survey responses are potentially auditable, it is less likely that respondents would deliberately answer questions incorrectly. A greater concern is that respondents may have inadvertently committed "honest" errors involving omission, confusion, or inaccurate information. While the targeted respondent for the survey was the supervising chief of mental health at each PFSA, in many cases, the survey questions were split up and delegated to different individuals. It remains unclear whether those who completed the questions had the best information, especially in some of the larger PFSAs, where the respondents may have been less familiar with local circumstances. It is also possible that the respondents who completed a given set of survey questions for each PFSA were not the same in 2007 and 2009. Finally, although the survey went through a pilot process, no formal validation assessment was made of the survey instrument, so it is possible that some of the questions may have been unclear to the respondents or, at the very least, subject to different interpretations.

SUMMARY

Between 2007 and 2009, the reported availability of most VA services increased. By October 2009, nearly all PFSAs (99 percent) reported having suicide-prevention coordinators on staff, compared with 5 percent in May 2007, and the number of PFSAs reporting suicide-prevention training for at least some staff increased from 57 percent in 2007 to 96 percent in 2009. The reported availability of other VA mental health services, particularly care provided after hours at VAMCs, also increased. The number of EBPs reported to be available within PFSAs increased as well, with roughly half of the PFSAs reporting that they offered all or all but one of the EBPs selected for this study (not including electroconvulsive therapy) in 2007 and nearly three-quarters reporting that they offered that many EBPs in 2009. Similar to the situation in 2007, in 2009 most EBPs were reported to be offered primarily in VAMCs rather than CBOCs. Finally, in more than 90 percent of the PFSAs, the average veteran is within an hour's drive of both basic and specialized mental health services.

Despite the increase in reported availability of most VA services, there was variability in both basic and specialized mental health services, as well as in EBPs, suggesting that, for some veterans, access remains a problem. This was particularly evident for CBOCs and for after-hours services. Although drive times to facilities offering EBPs have been reduced, the reported availability of two EBPs (medication evaluation/management and intensive outpatient treatment for SUD) decreased slightly, and the gap between reported availability and the target population of those who could potentially benefit from the practice increased for one EBP (integrated dual-diagnosis therapy). Similar to the 2007 survey findings, the 2009 survey results show significant variation within VISNs in reported structural supports, suggesting that national- or VISN-level policies in these areas either did not exist for many EBPs or were not known by PFSA administrators at the time of the 2009 survey. In particular, there were unused opportunities to share Chronic Care Model strategies across VISNs and PFSAs.

While access to EBPs is important, improved mental health outcomes are related to how closely the implementation of an EBP adheres to empirically developed standards described in the literature. Responses to the 2009 survey suggest that the majority of PFSAs reported practices consistent with "good" or "excellent" fidelity to standards for most supported-employment services and assertive community treatment/MHICM practices. There was, however, variability in some standards reported by PFSAs across the practices within these areas. Only 43 percent of PFSAs reported having clinical administrators for evidence-based family psychoeducation, a recommended important component of these programs, and only 29 percent of PFSAs reported offering treatment for a period of at least nine months, suggesting a lower level of consistency with implementation standards. In general, PFSAs reported fewer recruitment difficulties in 2009 than in 2007, but some positions remained difficult to fill.

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CHAPTER 5. DOCUMENTED PROCESSES OF CARE

This chapter summarizes the mental health care received by veterans in our study, as described by performance indicators, which measure of the *process* of care (e.g., the extent to which EBPs are implemented and the frequency and timing of services).

Following a multistep process, we developed 88 performance indicators that applied to each of the diagnostic cohorts and to the study population as a whole. This process was described in Chapter 2. About one-third of the indicators (31) could be evaluated using only administrative data, while the remaining 57 required a combination of administrative and medical record data. The indicators covered four domains of care: 29 assessed the quality and extent of diagnosis and assessment practices, 44 assessed the quality and extent of treatment processes, 13 assessed chronic disease management, and 2 assesses rehabilitation.

This chapter summarizes the results from our application of the performance measures to the VHA's administrative and medical record data. We present results from selected indicators only; Sorbero 2010 and Farmer 2010 (Farmer et al., 2010, October; Sorbero et al., 2010, June) provide a thorough discussion of results for each indicator. We selected indicators on the basis of their validity and reliability. The indicators, in the order which they are presented here, are listed in Appendix B.

The results presented in this chapter are divided into (1) diagnosis and assessment of conditions, (2) treatment following new treatment episodes (NTEs), (3) treatment with EBPs, (4) treatment for SUD, (5) chronic-disease management, and (6) follow-up after psychiatric hospitalization. Where possible, we also compare our results with those from other providers or payers of care, including private insurance, Medicare, and Medicaid.

All of our performance-indicator results are presented without risk adjustment for veteran characteristics, because all veterans captured in the denominator for each performance indicator meet eligibility criteria for that indicator and should receive the clinical process described by it (Hermann, Rollins, and Chan, 2007). The methodology for the statistical analysis was described in Chapter 2. Higher scores on performance indicators reported in this chapter reflect better performance. However, an issue germane to the entire chapter relates to the lack of agreed-upon thresholds for distinguishing among levels of performance. Without articulated thresholds, it is not possible to judge whether the care provided is "good enough" (Sox and Greenfield, 2010) or meets an acceptable level of care, where acceptable is defined as performance that exceeds a predetermined threshold in a population of clinical practices. While we may presume that, for many indicators, adherence would approach 100 percent (taking into account patient preferences), without stated standards it is not possible to draw conclusions about whether the VHA is performing well or poorly with respect to a given practice. Therefore, we simply present the numbers, hoping to generate discussion about whether the findings represent satisfactory care or whether adherence should or could be improved for some processes of care.

FINDINGS FOR ASSESSMENT AND DIAGNOSIS

The goal of patient assessment is to improve the health of patients through appropriate and timely diagnostic procedures. To accomplish this, VA program outcomes state that "VA patients should be evaluated according to accepted standards of practice." A thorough initial assessment, including identification of complicating symptoms/comorbidities (Kessler et al., 2005) and psychosocial needs, improves the chances of a correct diagnosis and is necessary to identify the most appropriate interventions. Follow-up assessments, such as monitoring for medication side effects, help improve compliance and lead to more effective care. The benefits of systematic and thorough assessments are especially pronounced for high-risk and clinically complex populations.

While it is reasonable and desirable to have all patients receive an assessment, there is little empirical evidence to support a linkage between assessment and improved outcomes. Most assessment indicators are supported by expert opinion and have unknown predictive validity, i.e., the extent to which a score on a scale or test predicts some criterion measure or outcome. Additionally, the science behind what defines "adherence" is, for many indicators, not well developed. For example, what constitutes a physical exam? How many elements have to be present for the indicator to be met? The Altarum/RAND team used clinical judgment, input from the VA steering committee, and expert consultation to make these determinations. Additional details on how these indicators were operationalized are available in the technical manuals and abstraction modules on the Altarum website. We used medical record data to populate the assessment indicators presented in this chapter, with the exception of laboratory screening tests.

Table 5.1 describes the selected performance indicators related to assessment. The short indicator labels in the first column are used to refer to indicators throughout this report. If an indicator applies specifically to veterans in a single diagnostic cohort, the cohort is specified in parentheses. The second column provides the indicator description, including the indicator identifier[32] (in parentheses), which is used to uniquely identify each indicator in the technical manuals and prior reports (Altarum Institute and RAND-University of Pittsburgh Health Institute, 2007; Sorbero et al., 2010, June; Watkins et al., 2010, October). The third column shows the primary data source used to populate each indicator, and the fourth column reports the VHA national average result. Figure 5.1 presents the VHA national average performance for these indicators.

Table 5.1. FY 2007 Assessment Performance Indicators

Indicator	Description	Data Source	VHA National Average (percent)
Suicide	Proportion of study veterans with documentation of an assessment for suicide ideation during the study period (Suicide 1)	Medical record	81.8
Substance abuse	Proportion of study veterans in a new treatment episode with documentation of an assessment for substance abuse within 30 days (Cross-cutting 3)	Medical record	71.8
Housing and employment	Proportion of study veterans in a new treatment episode with documentation of assessments for both housing and employment needs/deficits within 30 days (Psychosocial 2)	Medical record	44.0
Physical exam	Proportion of study veterans in a new treatment episode with documentation of a physical exam within 30 days (Cross-cutting 4(a))	Medical record	52.2

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[32] Indicator identifiers with a number (e.g., Suicide 1) refer to medical-record-based indicators, while those with a letter (e.g., Cross-cutting A) refer to administrative-data-based indicators. Indicator identifiers ending with a lower-case letter (e.g., Cross-cutting 4(a)) refer to indicators that had multiple numerators specified in the technical manuals; the lower case letter refers to the numerator reported here.

Indicator	Description	Data Source	VHA National Average (percent)
PTSD symptoms (PTSD)	Proportion of veterans in the PTSD cohort in an NTE with documentation of assessment for PTSD symptoms with a standard instrument[33] within 30 days (PTSD 1(a))	Medical record	5.6
Follow-up symptoms	Proportion of study veterans with documentation that symptoms were reassessed between two and four months following the start of an NTE (Cross-cutting 7)	Medical record	30.2
Response to medication (MDD)	Proportion of veterans in the MDD cohort on medication with documentation of assessment of degree of response/remission between 2 and 4 months following the start of an NTE (MDD 6(a))	Medical record	54.9
Response to psychotherapy (MDD)	Proportion of veterans in the MDD cohort receiving psychotherapy with documentation of assessment of degree of response to outpatient group and/or individual psychotherapy between 2 and 4 months following the start of an NTE (MDD 7)	Medical record	23.0
All side effects (study period) (SCHIZ)	Proportion of veterans in the schizophrenia cohort taking antipsychotic medication with documentation of assessment of weight/BMI (body mass index) and glycemic control and lipids during the study period (Schizophrenia 2(d))	Medical record	73.6
Medication lab tests	Proportion of study veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication who received all recommended blood-level monitoring tests during the study period (Cross-cutting A)	Administrative	77.4

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[33] Eighteen possible instruments were counted, including the PTSD Checklist and Clinician-Administered PTSD Scales. At the time this indicator was developed, the study team felt that for MDD, it was possible to measure response to treatment without a standardized instrument; standardized instruments did not exist for the other disorders.

Figure 5.1. FY 2007 Cohort Veterans Meeting Assessment Performance Indicators (VHA National Average)

Proportion of Study Cohort Veterans Meeting Assessment
Performance Indicators, VHA National Average (FY2007)

—— indicates 95% C.I.

Individual performance indicators are listed along the y-axis in Figure 5.1, and the x-axis represents the proportion of veterans in the indicator denominator who satisfy the indicator. The thin black lines represent 95 percent confidence intervals.

Initial Assessments

Among initial-assessment indicators, performance was highest for assessment of suicide ideation (over 80 percent) and recent substance use (72 percent) and lowest for PTSD-symptom assessment (6 percent of veterans in the PTSD cohort in an NTE). Slightly more than half (52 percent) of veterans had documentation of a physical exam by a qualified provider within 30 days of an NTE (75 percent had documentation of a physical exam in the study period), while 60 percent of those in an NTE had a documented baseline assessment of housing needs within 30 days, 62 percent had a documented baseline assessment of employment needs within 30 days, and 44 percent had documentation of both housing and employment needs.

It is difficult to compare these findings with results from other studies, as the metrics used to assess performance are often either unknown or lack sufficient detail to justify a comparison. However, it

appears that the VHA's performance on rates of initial assessment is similar to or better than that reported for other populations or settings. For example, one 2003 study of patients with MDD who were served at a VA primary care facility found that in the six months following the index visit for depression, 57 percent were assessed for suicide ideation, 65 percent had documentation of substance use assessment, and 73 percent had documentation of a physical exam (Dobscha et al., 2003). Other studies have found that 24 percent of primary care patients with any depressive disorder reported having been assessed for suicide ideation by their primary care provider in the past six months (Hepner et al., 2007), 66 percent of outpatients with schizophrenia or affective disorder reported having received a physical exam in the past year (Dickerson et al., 2003), and 68 percent of physicians in the National Survey of Primary Care Physicians and Psychiatrists reported that they "regularly" ask new patients about drug use (Friedmann, McCullough, and Saitz, 2001).

Follow-Up Assessments

Assessing response to treatment, including side effects and adherence, is a critical component of acute treatment, as patients who are not responding or who have poor adherence may need to have their treatment regimen changed (e.g., different medications or dosing, or added psychiatric medications if the patient is receiving only psychotherapy). Among these follow-up-assessment indicators, performance was highest for medication blood-level monitoring (77 percent of veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication) and assessments of side effects from medications (73 percent of veterans in the schizophrenia cohort who were taking antipsychotic medication). Performance on indicators related to assessments of response to treatment was lower. Less than one-third (30 percent) of the study veterans had documentation that their symptoms were reassessed between two and four months following the start of a new treatment episode. These findings hold when looking at the effects of specific treatments. Less than one-quarter (23 percent) of veterans in the MDD cohort who were receiving psychotherapy had documentation of an assessment of response to psychotherapy, and 55 percent of those receiving at least one prescription for psychiatric medications had documentation of assessment of response. No prior studies have reported the proportion of patients with MDD who received assessments of treatment response. However, one prior study surveyed representatives at a number of psychiatric practices, including group multispecialty practices, mental health specialty practices, outpatient public clinics, and private practitioners, and found that only 25 percent of the practices "usually or always" monitored change in depression scores using a standardized depression questionnaire (Duffy et al., 2008).

NEW TREATMENT EPISODE PERFORMANCE INDICATORS
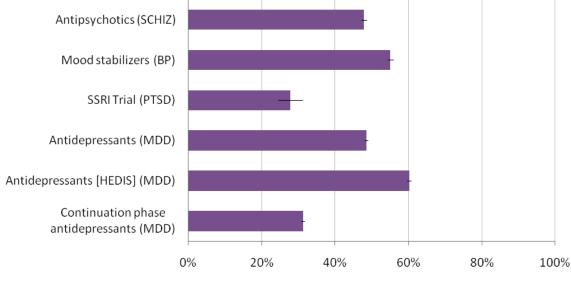
Many of the performance indicators used in our study described processes of care that applied to veterans who were experiencing an NTE. An NTE requires a different set of care processes (e.g., adequate initiation of medication treatment) than ongoing or continuing care and is defined by either the exacerbation of a condition that requires psychiatric inpatient care or the initiation of outpatient treatment after a break of five or more months without care. The exact definition of an NTE varies by diagnostic cohort and is specified in the technical manuals. In this section, we describe NTE performance indicators related to medication use. All the indicators address care that is received following the start of an NTE. Table 5.2 describes each NTE performance indicator, and Figure 5.2 shows the VHA national average results.

Table 5.2. FY 2007 NTE Performance Indicators

Indicator	Description	Data Source	VHA National Average (percent)
Antipsychotics (SCHIZ)	Proportion of veterans in the schizophrenia cohort who filled prescriptions for a 12-week supply of an antipsychotic medication in the 12 weeks following the start of an NTE (Schizophrenia A (a))	Administrative	47.9
Mood stabilizers (BP)	Proportion of veterans in the bipolar-disorder cohort who filled prescriptions for a 12-week supply of a mood-stabilizing agent within 12 weeks of an NTE (Bipolar disorder B (1))	Administrative	55.1
SSRI Trial (PTSD)	Proportion of veterans in the PTSD cohort in an NTE with documentation of an adequate trial ($\geq$ 60 days) of SSRIs or a documented reason for discontinuing (PTSD 6 (c))	Medical Record	27.9
Antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following the start of an NTE (MDD A (a))	Administrative	48.5
Antidepressants [HEDIS[a]] (MDD)	Proportion of veterans in the MDD cohort with at least one filled prescription for an antidepressant who filled prescriptions for a 12-week supply in the 12 weeks following the start of an NTE (MDD A (a HEDIS))	Administrative	60.2
Continuation-phase antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 180-day supply of an antidepressant in the 180 days following the start of an NTE (MDD B (1))	Administrative	31.3

[a]Healthcare Effectiveness Data and Information Set.

**Figure 5.2. Study Cohort Veterans Meeting NTE Performance Indicators
(VHA National Average, FY 2007)**

— indicates 95% C.I.

Among veterans in an NTE, about half of those in the schizophrenia cohort (48 percent) received a 12-week supply of antipsychotics within 12 weeks, and about half of those in the bipolar-disorder cohort (55 percent) received a 12-week supply of mood stabilizers within 12 weeks. We observed similar results for MDD treatment. About half of those in the MDD cohort in an NTE (49 percent) received a 12-week supply of antidepressants within 12 weeks (antidepressants [MDD]), and about one-third (31 percent) received a 180-day supply within 180 days (continuation-phase antidepressants [MDD]). We also found that 60 percent of veterans in the MDD cohort *with at least one filled prescription for an antidepressant* received a 12-week supply within 12 weeks (antidepressants [HEDIS] [MDD]). This measure is included in the Healthcare Effectiveness Data and Information Set (HEDIS), titled Antidepressant Medication Management—Effective Acute Phase Treatment, and reported annually by the NCQA (National Committee for Quality Assurance, 2005). Table 5.3 shows the relevant HEDIS results across the commercial, Medicare, and Medicaid markets.

Table 5.3. Antidepressant Medication Management: Effective Acute-Phase Treatment, by Plan Type and VHA National Average, 2007

Patients	Commercial plans (percent)	Medicare (percent)	Medicaid (percent)	VHA National Average, FY 2007 (percent)	
Members newly diagnosed and treated with an antidepressant who remain on an antidepressant medication for at least 12 weeks	62.9	61.2	42.8	Veterans in the MDD cohort who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following the start of a new treatment episode (MDD A (a HEDIS))	60.2

Finally, while VA treatment guidelines "strongly recommend" SSRIs "as monotherapy for the treatment of PTSD," only 27.9 percent of veterans in the PTSD cohort had documentation of an adequate trial of SSRIs (VA/DoD Clinical Practice Guideline Working Group, 2003). However, it is important to note that we examined only care received during FY 2007, and it is possible that veterans may have received and not responded to a trial of SSRIs in previous years.

EVIDENCE-BASED PRACTICES

EBPs—treatments for which there is an empirical base of support for a link between the delivery of the practice and improved mental health outcomes—improve clinical outcomes and quality of life for patients with serious mental illnesses and have been shown to be cost-effective (Bauer et al., 2006; Simon et al., 2001) and, for certain segments of the population, cost-saving (Katon et al., 2008; Simon et al., 2007). Providing evidence-based care corresponds with the IOM domain of effectiveness, which defines effective care as care based on scientific knowledge. The President's New Freedom Commission on Mental Health recommended the advancement of EBPs, including specific medications for specific conditions, cognitive and interpersonal therapies for depression, multisystemic therapy, and collaborative treatment in primary care. In light of this, the VA Statement of Work included an examination of the VHA's use of evidence-based models of care for each of the diagnoses (research question 7).

The study team and VA Advisory Group reviewed the treatment literature for each study diagnosis and identified 12 EBPs for inclusion in the study. The evidence base for each EBP is summarized in the technical manuals (Altarum Institute and RAND-University of Pittsburgh Health Institute, 2007). The Phase 1 report and the facility survey report (Pincus et al., 2008, May; Woodroffe et al., 2010, October) describe the availability of these EBPs and adherence to standards of implementation. The EBP practice indicators presented here cover a subset of the EBPs in the facility survey reports (Pincus et al., 2008, May; Woodroffe et al., 2010, October) and include MHICM, supported employment, family psychoeducation, social-skills training, cognitive behavioral therapy, relapse-prevention therapy, and contingency management. While the facility survey asked about availability of these services, the data presented here reflect utilization of these services as documented in administrative and medical record data.
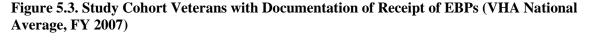
To the extent possible, the same definitions were provided to facility survey respondents and medical-record abstractors. For example, facility survey respondents first were asked to identify whether or not

contingency management (CM) was offered in their facility. They were then given a detailed description of an evidence-based form of CM[34] and asked to indicate how strongly their facility's implementation aligned with the described form. Similarly, the medical-record abstractors were given the same description and asked to identify encounters with one or more discrete elements from the description, such as the receipt of vouchers for positive reinforcement. Because facility survey respondents were asked separately about availability and alignment with an evidence-based model, the availability of EBPs may be overstated relative to what is indicated in the medical-record review. Table 5.4 provides full descriptions for each EBP performance indicator.

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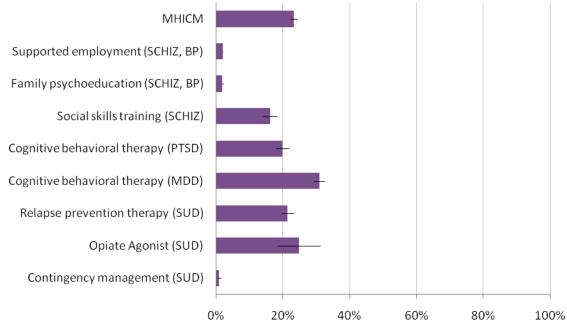
[34] CM is a strategy used in alcohol and other substance abuse treatment to encourage positive behavior change (e.g., abstinence, attending therapy sessions) by providing reinforcing consequences when patients meet treatment goals and by withholding those consequences or providing punitive measures when patients engage in the undesired behavior (e.g., drinking, failure to adhere to clinic rules). For example, positive consequences for abstinence may include receipt of vouchers that can be exchanged for retail goods; negative consequences may include withholding of vouchers. The reinforcing or punishing consequences may be contingent on objective evidence of recent alcohol and/or drug use or on another behavior important in the treatment process, such as compliance with a medication regimen or regular clinic attendance. CM procedures may involve contingency contracting, which is tailored for each patient and may be implemented through explicit written contracts that detail the desired behavior change, duration of intervention, frequency of monitoring, and potential consequences of a patient's success or failure.

Table 5.4. EBP Performance Indicators

Indicator	Description	Data Source	VHA National Average (percent)
MHICM	Proportion of study veterans with at least three inpatient discharges or 30 cumulative inpatient days who used MHICM in the study period (Cross-cutting H)	Administrative	23.3
Supported employment (SCHIZ, BP)	Proportion of veterans in the schizophrenia or bipolar-disorder cohort, or with psychosis, using supported employment in the study period (Cross-cutting J)	Administrative	2.0
Family psychoeducation (SCHIZ, BP)	Proportion of veterans in the schizophrenia or bipolar-disorder cohort using any family psychoeducation in the study period (Cross-cutting K)	Administrative	1.9
Social-skills training (SCHIZ)	Proportion of veterans in the schizophrenia cohort receiving any psychosocial rehabilitation with documentation of any social-skills training in the study period (Schizophrenia 3(a))	Medical record	16.3
CBT (PTSD)	Proportion of veterans in the PTSD cohort receiving any psychotherapy with documentation of CBT elements in the study period (PTSD 4(a))	Medical record	19.9
CBT (MDD)	Proportion of veterans in the MDD cohort receiving psychotherapy with documentation of CBT elements in the study period (MDD 5(a))	Medical record	30.9
Relapse prevention therapy (SUD)	Proportion of veterans in the SUD cohort receiving psychotherapy with documentation of relapse-prevention therapy (RPT) elements in the study period (SUD 8(a))	Medical record	21.5
Maintenance pharmacotherapy (SUD)	Proportion of veterans in the SUD cohort with opiate dependence in an NTE with documentation that maintenance pharmacotherapy at empirically based dosages was offered or contraindicated within 30 days of the NTE (SUD 5(e))	Medical record	24.8
Contingency management (SUD)	Proportion of veterans in the SUD cohort with documentation of receipt of any contingency management or contingency contracting in the study period (SUD 9(a))	Medical Record	1.0

Figure 5.3 shows the VHA national average results.

Figure 5.3. Study Cohort Veterans with Documentation of Receipt of EBPs (VHA National Average, FY 2007)

Proportion of Study Cohort Veterans Meeting Evidence-Based Practice Performance Indicators, VHA National Average (FY2007)

—— indicates 95% C.I.

Less than 30 percent of veterans had documentation of receipt of any EBP. For three EBPs—family psychoeducation, enrollment in supported employment, and contingency management for SUD—2 percent or fewer of the relevant veteran populations had documentation that they received the EBP. This is notable in light of the results from the facility survey (presented in Chapter 4) indicating that these practices are reported to be widely available. Rates of documented evidence-based psychotherapies were higher but still low. Among veterans receiving psychotherapy, 20 percent of those in the PTSD cohort and 31 percent of those in the MDD cohort had documentation of at least one psychotherapy visit with evidence of CBT elements, and 22 percent of those in the SUD cohort had documentation of at least one psychotherapy visit with evidence of RPT elements.

However, the mean number of visits for study veterans with documentation of receiving any psychotherapy visits with evidence of CBT or RPT elements was 13.5 for those in the PTSD cohort, 8.5 for those in the MDD cohort, and 19.6 for those in the SUD cohort. While there is no absolute standard for the number of CBT sessions required for therapeutic effectiveness, several studies suggest 8 to 12 sessions as a minimum (American Psychiatric Association, 2000; Luty et al., 2007). Thus, while the majority of veterans who are receiving therapy or psychosocial treatments do not have documentation of receiving evidence-based care (CBT, social-skills training, RPT, or CM), it appears that those who do receive it are receiving an adequate number of visits.

There are few studies reporting rates of receipt of these EBPs in similar populations or settings. One study that examined rates of receipt of CBT found that 55 percent of civilian patients with depressive disorders (not necessarily MDD) who were receiving psychotherapy received at least one element typical of CBT (e.g., behavioral activation, reducing negative thoughts) (Hepner et al., 2007). Another study interviewed

members of the American Psychiatric Association and found that 66 percent of patients treated with any psychotherapy were treated with therapy in which the psychiatrist "discussed cognitive themes (i.e., the patient's ideas or beliefs)" or "discussed specific activities or tasks for the patient to attempt outside of the session" (West, Duffy, et al., 2005; West, Wilk, et al., 2005). These studies did not look specifically at patients with MDD.

It is important to note that our analysis of EBPs was not comprehensive. We identified EBPs that were common and were identifiable using administrative or medical record data. We were unable to assess some other EBPs for the treatment of these conditions, because of the lack of appropriate data. It is certainly possible, and even likely, that some veterans were receiving EBPs other than those we were able to measure. For example, we were not able to assess whether veterans received interpersonal psychotherapy, an evidence-based form of psychotherapy often used instead of CBT.

SUBSTANCE-USE DISORDERS
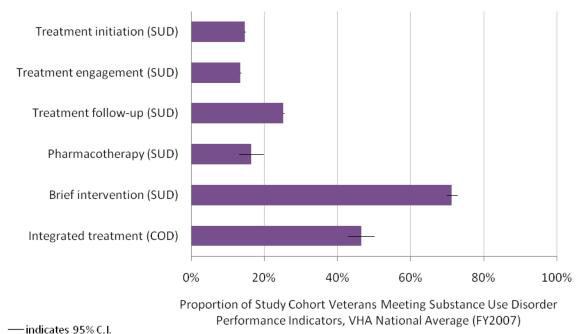
SUD performance indicators consider various aspects of SUD care, including initiation of appropriate and timely treatment, treatment engagement, use of pharmacotherapy, and the extent of treatment integration for veterans with a co-occurring SUD.

Table 5.5 provides full descriptions for each SUD performance indicator, and Figure 5.4 shows the VHA national average results.

Table 5.5. SUD Performance Indicators

Indicator	Description	Data Source	VHA National Average (percent)
Treatment initiation (SUD)	Proportion of veterans in the SUD cohort who initiated treatment within 14 days of the start of an NTE with any provider (SUD A (a))	Administrative	14.7
Treatment engagement (SUD)	Proportion of veterans in the SUD cohort with two or more diagnosis-related outpatient encounters in the 30 days following the start of an NTE for alcohol and other drug dependence (SUD C (a))	Administrative	13.5
Treatment follow-up (SUD)	Proportion of veterans in the SUD cohort who had follow-up care within 90 days of the start of an NTE in the outpatient setting (SUD B (a))	Administrative	25.2
Pharmacotherapy (SUD)	Proportion of veterans in the SUD cohort with alcohol dependence in an NTE with documentation that pharmacotherapy was offered or contraindicated within 30 days of the start of an NTE (SUD 4 (e))	Medical record	16.4
Brief intervention (SUD)	Proportion of veterans in the SUD cohort with documentation of a brief intervention, current specialty care, or a completed referral to specialty mental health during the study period (SUD 3 (1d))	Medical record	71.3
Integrated treatment (co-occurring SUD)	Proportion of veterans with co-occurring SUD with documentation of any visits that treated both the SUD and mental health disorder on the same day within three months of an NTE (Co-occurring SUD 2 (c))	Medical record	46.5

Figure 5.4. Study-Cohort Veterans Meeting SUD Performance Indicators (VHA National Average, FY 2007)

Proportion of Study Cohort Veterans Meeting Substance Use Disorder Performance Indicators, VHA National Average (FY2007)

—— indicates 95% C.I.

The first three indicators listed are close approximations of HEDIS measures, and comparison data do exist. In our study, fewer than 15 percent of veterans in the SUD cohort who were in an NTE initiated treatment within the first two weeks of the NTE, and fewer than 14 percent became engaged with treatment (defined as two or more outpatient visits) within a month of the NTE. One-quarter (25 percent) received follow-up care within 90 days of the NTE. The NCQA reports results for treatment initiation and engagement annually across the commercial, Medicare, and Medicaid markets (National Committee for Quality Assurance, 2005). The relevant results from 2007 are shown in Table 5.6 (National Committee for Quality Assurance, 2009). As discussed in Chapter 8, the specification of this indicator in the present study aligns closely but not perfectly with the specification reported by the NCQA. In particular, the denominator populations differ in a number of potentially important ways. First, the NCQA specification includes members between the ages of 13 and 18 who are not eligible for entry into the armed services or our study cohort. Second, the NCQA specification requires a four-month break in care before a patient can qualify for a "new episode" of care, while our study requires a five-month break in care before a patient can qualify for an NTE. Third, the NCQA specification considers only members with alcohol or other drug dependence (AOD), while our study considers all veterans in the SUD cohort, including those with alcohol or drug abuse disorders. Finally, since the VA has mandatory alcohol screening, identified patients in the VA cohort are likely to be, on average, less sick than patients in the private sector, on Medicare, or on Medicaid, as these patients are identified in claims data only after having received a diagnosis. The likely direction of bias from these differences is unclear.

Table 5.6. Initiation and Engagement of AOD Treatment, by Plan Type and VHA National Average, 2007

	Commercial Plans (percent)	Medicare (percent)	Medicaid (percent)	VHA National Average, FY 2007 (percent)	
Proportion of adolescent and adult (age 13 years and older) members with a new episode of AOD who initiated treatment through an inpatient admission, outpatient visit, intensive outpatient encounter, or partial hospitalization within 14 days of the diagnosis	44.5	50.5	45.6	Proportion of veterans in the SUD cohort who initiated treatment within 14 days of the start of an NTE with any provider (SUD A (a))	14.7
Proportion of adolescent (13 to 17 years) and adult (18 years and older) members with a new episode of AOD who received two additional AOD services within 30 days	15.2	4.5	14.4	Proportion of veterans in the SUD cohort with two or more diagnosis-related outpatient encounters in the 30 days following the start of an NTE for AOD (SUD C (a))	13.5%

Several medications are effective for alcohol dependence. Among veterans with this condition, 16.4 percent had documentation in the medical record that pharmacotherapy (naltrexone, Antabuse [disulfiram], or acamprosate) was offered or contraindicated within 30 days of an NTE. One prior study asked substance abuse specialist physicians to estimate the proportion of patients treated for alcoholism in the previous three months to whom they prescribed various medications. The average reported proportions were 13 percent for naltrexone and 9 percent for disulfiram (Mark, Kranzler, Poole, et al., 2003; Mark, Kranzler, Song, et al., 2003; Mark and Swait, 2003). That study was not restricted to patients in an NTE.
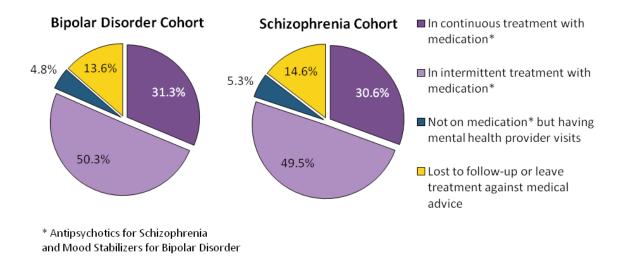
Ideally, treatment for co-occurring SUD should be integrated with mental health and substance abuse treatments delivered by a single clinical team or a clinician cross-trained in both mental health and SUD. Although we attempted to assess the coordination of care among the providers treating veterans with co-occurring disorders (Co-occurring SUD 3), the data for this indicator had poor inter-rater reliability. However, 47 percent of veterans in the co-occurring SUD cohort had a visit that treated their mental health condition and a visit that treated their SUD on the same day. The National Survey on Drug Use and Health (NSDUH) 2008 (Substance Abuse and Mental Health Services Administration, 2009) found that among adults in the U.S. population with co-occurring serious mental illness and SUDs, only 11.4 percent received both mental health and substance abuse treatment within the same 12-month period. Note that the denominators of the two results are different; unlike the VHA indicator, the NSDUH population is not restricted to people who have already accessed treatment.

It is likely that visits that occur on the same day reflect care that is more integrated than visits that are separated by up to 12 months in time, suggesting that VHA care for co-occurring SUDs may in fact be fairly well coordinated, if not integrated.

CHRONIC-DISEASE MANAGEMENT

Chronic-disease management refers to the longitudinal treatment and monitoring that follows initial diagnosis and acute-phase treatment; it is a critical phase for those with chronic mental health disorders. Chronic-disease management is emphasized in the VHA's program outcomes: "VA patients should receive follow-up by the treatment team consistent with the treatment plan for patients' chronic mental health disorder." While many aspects of chronic-disease management, such as filled prescriptions or laboratory tests, can be assessed using administrative data, medical record data capture additional subtleties. For example, while we know from administrative data that about one-third of veterans in the schizophrenia and bipolar-disorder cohorts were in continuous treatment[35] with medication during the study period, the medical record provides information on patient refusals or other preferences (Figure 5.5). The two medication-management indicators discussed below were assessed for the entire study period, and we found that about 5 percent of veterans in the schizophrenia and bipolar-disorder cohorts were not on medication but did have mental health provider visits, and that nearly 15 percent of them were not on medication and had no mental health visits in the prior three months or left treatment against medical advice (Figure 5.5).

Figure 5.5. Veterans in the Schizophrenia and Bipolar-Disorder Cohorts in Continuous or Intermittent Treatment with Medication, in Treatment with a Mental Health Provider, or Receiving No Treatment During the Study Period, Based on FY 2007 Medical-Record Review
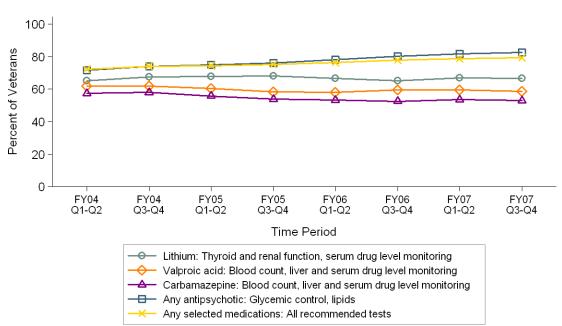
TRENDS IN VHA PERFORMANCE OVER TIME

To evaluate how VHA mental health care changed over the course of the implementation of the MHSP (FY 2004–FY 2007), we selected nine administrative data indicators. For the time trend analysis, we focused on indicators that were in the VA Clinical Practice Guidelines and/or considered an industry

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[35] Continuous treatment was defined as at least 300 days in a year of medication.

standard (American Psychiatric Association, 1994; Center for Quality Assessment and Improvement in Mental Health, 2007a, 2007b; National Committee for Quality Assurance, 2005). The VA Study Advisory Committee was particularly interested in the use of psychosocial interventions, as these are an important component of the MHSP and therefore may be most influenced by its implementation. Two indicators addressed treatment for schizophrenia, one addressed treatment for bipolar disorder, and the rest applied to all diagnostic cohorts. Each indicator was assessed for the first two quarters (October 1 through March 31) and the last two quarters (April 1 through September 30) of each fiscal year. As examples, we report detailed results for Cross-cutting A and J in Figures 5.6 and 5.7 and summary results for the broader set of nine indicators in Table 5.7.

The proportion of veterans on mood-stabilizer or antipsychotic medications with routine monitoring, defined as receiving all recommended blood-level monitoring tests for at least one of the medications received, increased by 7 percentage points (from 72.3 percent to 79.3 percent) during the study period (Figure 5.6). MHSP initiative 5.2.56D emphasized the importance of monitoring for medication side effects.
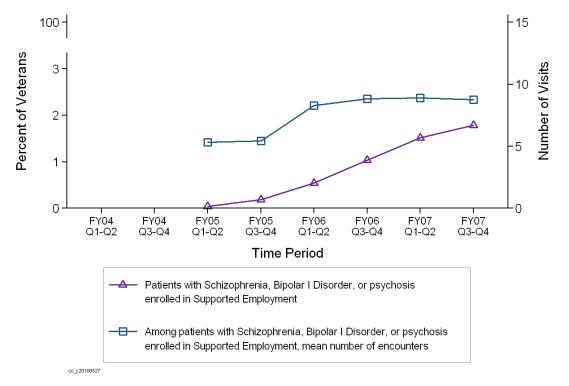
Figure 5.6. Veterans with Serious Mental Illness Taking Medication
(those with bipolar disorder, schizophrenia, MDD, PTSD, or SUD diagnoses with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication who received all recommended blood-level monitoring tests, FY 2004–FY 2007)

Enrollment in supported employment, which was a focus of VA initiative 2.3.33, was extremely uncommon across the entire time period, but its use did expand over time (Figure 5.7). The first evidence of supported-employment use was in the first half of FY 2005, and its penetration increased to 2 percent of veterans in the schizophrenia cohort, the bipolar cohort, or with psychosis by the second half of FY 2007. In addition, the average number of visits by veterans enrolled in supported employment increased over the study period.

Figure 5.7. Veterans Who Used Supported Employment and Average Number of Visits Across All Diagnostic Cohorts and Patients with Schizophrenia, Bipolar Disorder, or Psychosis, FY 2004–FY 2007

As summarized in Table 5.7, we observed few substantial improvements in VHA performance, as measured by the proportion of veterans receiving a service. However, in each case, the number of veterans receiving each service increased. For example, the percentage of veterans from any diagnostic cohort receiving any outpatient psychosocial or psychotherapeutic sessions increased by only 0.5 percentage points, but in absolute numbers, this was an increase of 117,563 veterans receiving services.

Table 5.7. Summary of Changes in Indicator Performance over Time, FY 2004–FY 2007

Indicator	Change in Performance (percentage points)	Change in the Number of Veterans Receiving Services
Bipolar disorder C: Proportion of patients with bipolar disorder treated with mood-stabilizer medications during the course of bipolar disorder treatment • Proportion with filled prescriptions for a 12-month supply	+1.5	+2,426
Schizophrenia B: Proportion of schizophrenia patients with long-term utilization of antipsychotic medications • Proportion with filled prescriptions for 12-month supply	+0.4	+460
Cross-cutting indicator A: Proportion of selected patients from all cohorts routinely monitored for side effects of treatment with mood-stabilizer or antipsychotic medications • Proportion receiving all recommended tests	+7.0	+16,074
Cross-cutting indicator C: Proportion of patients from any cohort receiving any psychological treatment or psychotherapeutic sessions in the outpatient setting • Proportion receiving any psychosocial or psychotherapeutic sessions	+0.5	+117,563
Cross-cutting indicator E: Proportion of patients in all cohorts receiving any psychotherapy treatment in the outpatient setting • Proportion receiving any psychotherapeutic encounters	-2.1	+51,899
Cross-cutting indicator J: Supported-employment utilization • Proportion in schizophrenia or bipolar-disorder cohorts or with psychosis enrolled in supported employment	+1.8	+2,220

FOLLOW-UP AFTER PSYCHIATRIC HOSPITALIZATION

Appropriate follow-up of treatment for mental illness can reduce both the duration of disability from the illness and the likelihood of rehospitalization (Larkin, Smith, and Beautrais, 2008). We evaluated follow-up rates using Follow-Up After Hospitalization for Mental Illness, an industry standard indicator developed by the NCQA and included in the HEDIS 2006 measure set (National Committee for Quality Assurance, 2005). The indicator is specified in Table 5.8.

Table 5.8. Cross-Cutting – G Specifications

Numerators	Individuals from the denominator whose discharge was followed by at least one diagnosis-related non-emergency outpatient follow-up encounter (including telemental health):
	
	   1. Within 7 days
	
	   2. Within 30 days
	
	   3. For those with any follow-up, the number of days until the first follow-up visit

Denominator	Veterans from all diagnostic cohorts discharged from acute psychiatric inpatient care during the study period

An outpatient visit with a mental health practitioner after discharge is recommended to support the patient's transition and confirm that the gains from hospitalization are maintained. Further specification details are provided in the technical manuals. Table 5.9 shows the overall results.
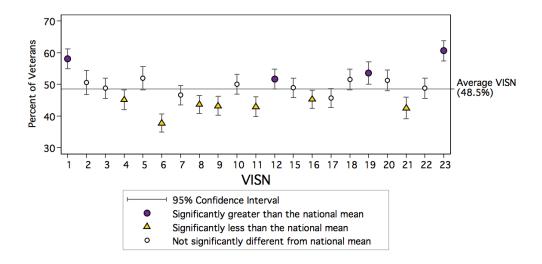
Table 5.9. Cross-Cutting - G Results, FY 2007

	VHA National Average	VISN Range
1. Within 7 days (percent)	47.7	37.7 to 60.7
2. Within 30 days (percent)	78.2	71.0 to 84.4
3. For those with any follow-up, the number of days until first follow-up visit	27.2	20.1 to 35.5

About half (47.7 percent) of those hospitalized for a psychiatric condition received an outpatient follow-up within 7 days of their discharge, and more than three-quarters (78.2 percent) received follow-up within 30 days.

Figure 5.8 shows these 7-day follow-up rates across VISNs. VISN 23 performed best (60.7 percent), and VISN 6 performed worst (37.7 percent). This 23-percentage-point difference is one of the largest VISN-level differences that we observed among all the indicators.

Figure 5.8. All Veterans Across All Diagnostic Cohorts Receiving Timely Follow-Up (Within 7 Days of an Acute Psychiatric Inpatient Discharge), by VISN, FY 2007

Contextual data are also available from the HEDIS measure Follow-Up After Hospitalization for Mental Illness. The HEDIS program and relevant results are summarized below. The program is managed by the NCQA and is used to measure the performance of health care plans. HEDIS data are submitted by individual health plans and subsequently audited and reported by the NCQA. In 2009, a total of 979 health-plan products submitted audited HEDIS data with representation across the commercial, Medicare, and Medicaid markets. The HEDIS measure is described as follows in *The State of Health Care Quality 2009*: "This measure estimates the percentage of members 6 years of age or older who were hospitalized for treatment of selected mental health disorders and who had a subsequent outpatient visit, intensive outpatient encounter or partial hospitalization with a mental health practitioner. The measure separately estimates the percentage of members who received follow-up within 7 and 30 days of discharge" (National Committee for Quality Assurance, 2009).

In the present evaluation, we applied this measure to the FY 2007 study cohort, with two subtle differences. First, the NCQA specification includes patients between the ages of 6 and 18 who are not eligible for entry into the armed services or our study cohort. And second, the NCQA specification includes hospitalizations for more than the four mental illnesses considered in this study. The relevant HEDIS results for plans in the commercial, Medicare, and Medicaid markets are given in Table 5.10.

Table 5.10. Follow-Up After Hospitalization for Mental Illness, by Plan Type and VHA National Average, 2007

	Commercial Plans	Medicare	Medicaid	VHA National Average, FY 2007
Follow-up within 7 days (percent)	57.2	38.1	42.6	47.7
Follow-up within 30 days (percent)	76.1	56.5	61.7	78.2

DATA LIMITATIONS

The findings reported in this chapter reflect VHA performance as measured by administrative and medical record data. There are limitations to these data and to administrative and medical record data in general.

Administrative data capture only services that were actually provided and medications for which prescriptions were filled. They do not capture occurrences of a service or medication being recommended by a provider but refused by the patient. They also do not capture instances in which a prescription for a medication was written but not filled. In addition, they do not include instances when the normally recommended treatment or medication for a condition is contraindicated because of patient allergies, prior history of poor response, or other reasons. In addition, unless a specific procedure code exists for the service being provided, the service may not be coded or may be miscoded as another type of service or encounter. The person who determines what procedure code is assigned is not always a physician or even someone with medical training. Further, the more people or steps that are involved between when care is delivered to a patient and when administrative data are entered into the system, the more opportunity exists for transcription or other coding errors.

Although the use of medical record data addresses some of these limitations, these data have their own limitations. Care that was provided but not documented in the medical record or care that was provided in a different way than documented in the record cannot be observed. Thus, data from the medical record reflect the quality of documentation and cannot be used to conclusively evaluate quality of care. For example, clinicians may be providing cognitive behavioral psychotherapy but documenting that only psychotherapy was provided. Similarly, care may be documented that was never actually delivered. We do not know the reason for a lack of documentation and whether the absence of a care process reflects poor documentation or indicates that the care did not occur.

Finally, services received prior to the beginning of the study period are not reflected in these data. This limitation may influence a number of indicators, such as family psychoeducation, social-skills training, or CBT. Because these services are usually delivered as a single course of treatment, it is possible that veterans received them before the study period and no longer need them.

SUMMARY

This chapter assesses VHA performance in FY 2007 on selected performance indicators based on medical records and administrative data. Overall, the data suggest that in most instances, VHA performance on

these indicators is as high as or higher than that reported in the literature for other providers; this finding is confirmed in Chapter 8. For example, we found that slightly more than four-fifths of veterans with bipolar disorder and schizophrenia received appropriate medication during the study period. Little is known about other populations, but studies of people covered by Medicaid and commercial health plans suggest that the VHA is doing better than other providers in this regard. National health-claims data show lower rates of utilization, with 31 percent of individuals prescribed a mood stabilizer (continuously or intermittently) still in treatment with a mood stabilizer 12 months later (Baldessarini, Henk, Sklar, Chang, and Leahy, 2008). About half (47.7 percent) of the study veterans who were hospitalized for a psychiatric condition received an outpatient follow-up within 7 days of their discharge, and more than three-quarters (78.2 percent) received follow-up within 30 days; HEDIS reports a range of 38.1 to 57.2 percent for 7-day follow-up and a range of 56.5 to 76.1 percent for 30-day follow-up. VISN 23 performed best (60.7 percent), and VISN 6 performed worst (37.7 percent). This 23-percentage-point difference is one of the largest VISN-level differences we observed among all the indicators.

However, although VHA performance in general compares favorably with that of other providers, the level of performance often falls below expectations set by performance guidelines adopted by the VHA. For example, we observed low rates of documented EBPs (received by less than one-third of veterans), as well as low rates of continuous treatment with mood stabilizers and antipsychotic medication for individuals in the bipolar-disorder and schizophrenia cohorts (received by less than one-third of veterans). This is important because patients who discontinue these medications have a much higher rate of relapse (Kane, 2006), even with short medication gaps.

The MHSP was finalized in November 2004, and funds were appropriated to implement it. Despite the additional funding, few improvements in the nine administrative-data performance indicators were observed over time. Examining the proportion of veterans that receive specific services offers only a limited view, however, of the expanded services being provided to a growing veteran population (as described in Chapter 3). With a few exceptions, the number of veterans receiving services increased, even when the proportion of veterans decreased. In some cases, the increases were very large. The time-trend analyses were limited to indicators that could be constructed with administrative data, and the extent to which these findings would generalize to indicators that require medical record data is unknown.

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CHAPTER 6. VARIATIONS IN CARE

As we have shown, the VHA has substantial capacity for providing access to mental health and SUD services for veterans, and it increased that capacity in many areas between 2007 and 2009. Moreover, for many measures, the VHA is following recommended processes of care in the majority of cases. However, access and quality in the aggregate do not tell the complete story. A key related issue is equity: How does access to quality services vary across different geographic areas and different veteran subpopulations in our study cohort?

The IOM considers equity to be one of the six aims of high-quality health care (Institute of Medicine, 2001). Improving equity can be understood to mean the reduction or elimination of disparities, where disparities are differences in the "the quality of health care that are not due to access-related factors or clinical needs, preferences, and appropriateness of intervention" (Stith, Nelson, and Institute of Medicine, 2002).

Variations in care do not necessarily mean disparities are present. Variations may be clinically justified or based on cultural or regional preferences; disparities, by contrast, are not clinically or culturally justified. Thus, it is essential to better understand the basis for observed differences before concluding that they are disparities. Further, the process of investigating differences can help identify techniques that high-performing areas have adopted for implementing care strategies. This chapter presents descriptive analyses of variation, which do not attempt to tease apart the underlying causal mechanisms or draw conclusions about whether disparities are present. While process measures are not risk-adjusted because they are applied to eligible populations, we confirmed that the results presented also hold when controlling for other veteran characteristics, except where noted.[36]

This chapter summarizes results about variations in the process of care. The analyses presented are organized around three of the four major domains introduced in Chapter 5: assessment and diagnosis, treatment, and chronic-disease management. We do not report separately on indicators related to rehabilitation and recovery; some of these can also be considered treatment and are reported on in the section on treatment below. Because the treatment domain is large, we further subdivide treatment into three components: indicators that assess treatment at the beginning of an NTE, indicators that assess the use of EBPs, and indicators related to SUDs. We report on SUDs separately because there are more indicators pertaining to the treatment of SUDs than there are for the other disorders.

We do not report on every indicator included in the medical-record report, only on those with either the highest face validity or the most evidence of predictive validity. All of the limitations discussed in earlier chapters apply to the analyses in this chapter. In particular, the data used reflect documented care rather than received care, and we do not know the extent to which care may be received but undocumented. Observed variations in documented care may therefore reflect variations in documentation patterns rather than treatment patterns.

A detailed discussion of all the indicators and of variation by the presence/absence of SUDs and service-connectedness is presented in the full medical-record report for SUD. The facility survey reports provide additional information on regional variations in the reported availability of mental health services and EBPs (Woodroffe et al., 2010, October). In this chapter, we present an overview of data and measures used in assessing variation across select measures, followed by the results of our analyses. We examined variations in care by population characteristics, including gender, age (18–34; 35–44; 45–54; 55–64; and

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[36] Results for performance indicators from the administrative and medical-record reports were adjusted for the following veteran characteristics: gender, age, co-occurring disorder, marital status, urban/rural location, and service-connectedness.

65 and older), whether the veteran participated in OEF/OIF, rural/urban status, diagnostic cohort, and VISN.

DATA AND INDICATORS

This analysis draws on administrative data for the population of veterans meeting study criteria in FY 2007 (N = 836,699 unique veterans), medical record data, and veteran survey data on samples of veterans from the population meeting study criteria in FY 2007 and having additional VHA utilization in FY 2008. Table 6.1 shows characteristics of veterans included in the FY 2007 study population and those included in the veteran survey and medical-record review.

Table 6.1. Veteran Characteristics, by Data Source

		Study Population, FY 2007	Veteran Survey Sample	Medical-Record Review Sample
Total		**836,699**	**6,190**	**7,069**
Age (%)	18–34	53,902 (6)	296 (5)	428 (6)
	35–44	68,796 (8)	507 (8)	701 (10)
	45–54	176,584 (21)	1,485 (24)	1,904 (27)
	55–64	378,491 (45)	2,770 (45)	2,792 (39)
	65+	158,925 (19)	1,132 (18)	1,244 (18)
Gender (% female)		55,860 (7)	565 (9)	640 (9)
Rural/urban location (% rural)		195,943 (23)	1,418 (23)	1,540 (22)
OEF/OIF veteran (% yes)		52,870 (6)	259 (4)	269 (4)
Service-connected (% yes)		451,088 (54)	3,170 (51)	3,477 (49)

These administrative and medical record data were used to examine performance indicators in three domains: assessment and diagnosis; treatment, consisting of indicators about NTEs, EBPs, and SUDs; and chronic-disease management.[37] The specific indicators for each of these are presented in Tables 6.2 through 6.6, respectively, along with the data source used to populate each indicator. The overall VA results for these performance measures are described in Chapter 5. Veteran survey data were used to describe the functional status of each group of veterans with a particular characteristic.

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[37] Several of the indicators can be considered to be part of both treatment and chronic-disease management. We include these indicators in the treatment section for the purposes of presentation.

Table 6.2. Assessment and Diagnosis Performance Indicators

Indicator	Description	Data Source
Suicide	Proportion of study veterans with documentation of an assessment for suicide ideation during the study period (Suicide 1)	Medical record
Substance abuse	Proportion of study veterans in an NTE with documentation of an assessment for substance abuse within 30 days (Cross-cutting 3)	Medical record
Housing and employment	Proportion of study veterans in an NTE with documentation of assessments for both housing and employment needs/deficits within 30 days (Psychosocial 2)	Medical record
Physical exam	Proportion of study veterans in an NTE with documentation of a physical exam within 30 days (Cross-cutting 4(a))	Medical record
PTSD symptoms (PTSD)	Proportion of veterans in the PTSD cohort in an NTE with documentation of assessment for PTSD symptoms with a standard instrument[38] within 30 days (PTSD 1(a))	Medical record
Follow-up symptoms	Proportion of study veterans with documentation that symptoms were reassessed between 2 and 4 months following the start of an NTE (Cross-cutting 7)	Medical record
Response to medication (MDD)	Proportion of veterans in the MDD cohort on medication with documentation of assessment of degree of response/remission between 2 and 4 months following the start of an NTE (MDD 6(a))	Medical record
Response to psychotherapy (MDD)	Proportion of veterans in the MDD cohort receiving psychotherapy with documentation of assessment of degree of response to outpatient group and/or individual psychotherapy between 2 and 4 months following the start of an NTE (MDD 7)	Medical record
All side effects (study period) (SCHIZ)	Proportion of veterans in the schizophrenia cohort taking antipsychotic medication with documentation of assessment of weight/BMI and glycemic control and lipids during the study period (Schizophrenia 2(d))	Medical record
Medication lab tests	Proportion of study veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication who received all recommended blood-level monitoring tests during the study period (Cross-cutting A)	Administrative

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[38] Eighteen possible instruments were counted, including the PTSD Checklist and Clinician-Administered PTSD Scales. At the time this indicator was developed, the study team determined that it would be possible to measure response to treatment without a standardized instrument for MDD and that standardized instruments did not exist for the other disorders.

Table 6.3. Treatment: NTE Performance Indicators

Indicator	Description	Data Source
Antipsychotics (SCHIZ)	Proportion of veterans in the schizophrenia cohort who filled prescriptions for a 12-week supply of an antipsychotic medication in the 12 weeks following the start of an NTE (Schizophrenia A (a))	Administrative
Mood stabilizers (BP)	Proportion of veterans in the bipolar-disorder cohort who filled prescriptions for a 12-week supply of a mood-stabilizing agent within 12 weeks of an NTE (Bipolar DisorderB (1))	Administrative
SSRI trial (PTSD)	Proportion of veterans in the PTSD cohort in an NTE with documentation of an adequate trial ($\geq$ 60 days) of SSRIs or a documented reason for discontinuing (PTSD 6 (c))	Medical record
Antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following the start of an NTE (MDD A (a))	Administrative
Antidepressants [HEDIS] (MDD)	Proportion of veterans in the MDD cohort and with at least one filled prescription for an antidepressant who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following the start of an NTE (MDD A (a HEDIS))	Administrative
Continuation-phase antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 180-day supply for an antidepressant in the 180 days following the start of an NTE (MDD B (1))	Administrative

Table 6.4. Treatment: EBP Performance Indicators

Indicator	Description	Data Source
MHICM	Proportion of study veterans with at least three inpatient discharges or 30 cumulative inpatient days who used MHICM in the study period (Cross-cutting H)	Administrative
Supported employment (SCHIZ, BP)	Proportion of veterans in the schizophrenia or bipolar-disorder cohort or with psychosis and using supported employment in the study period (Cross-cutting J)	Administrative
Family psychoeducation (SCHIZ, BP)	Proportion of veterans in the schizophrenia or bipolar-disorder cohort using any family psychoeducation in the study period (Cross-cutting K)	Administrative
Social-skills training (SCHIZ)	Proportion of veterans in the schizophrenia cohort receiving any psychosocial rehabilitation with documentation of any social-skills training in the study period (Schizophrenia 3(a))	Medical record
CBT (PTSD)	Proportion of veterans in the PTSD cohort receiving any psychotherapy with documentation of CBT elements in the study period (PTSD 4(a))	Medical record
CBT (MDD)	Proportion of veterans in the MDD cohort receiving psychotherapy with documentation of CBT elements in the study period (MDD 5(a))	Medical record
RPT (SUD)	Proportion of veterans in the SUD cohort receiving psychotherapy with documentation of RPT elements in the study period (RPT) (SUD 8(a))	Medical record
Maintenance pharmaco-therapy (SUD)	Proportion of veterans in the SUD cohort with opiate dependence with documentation that maintenance pharmacotherapy at empirically based dosages was offered or contraindicated within 30 days of the NTE (SUD 5(e))	Medical record
Contingency management (SUD)	Proportion of veterans in the SUD cohort with documentation of receipt of any contingency management or contingency contracting in the study period (SUD 9(a))	Medical record

Table 6.5. Treatment: SUD Performance Indicators

Indicator	Description	Data Source
Treatment initiation (SUD)	Proportion of veterans in the SUD cohort who initiated treatment within 14 days of the start of an NTE with any provider (SUD A (a))	Administrative
Treatment engagement (SUD)	Proportion of veterans in the SUD cohort with two or more diagnosis-related outpatient encounters in the 30 days following the start of an NTE for AOD (SUD C (a))	Administrative
Treatment follow-up (SUD)	Proportion of veterans in the SUD cohort who had follow-up care within 90 days of the start of an NTE in the outpatient setting (SUD B (a))	Administrative
Pharmacotherapy (SUD)	Proportion of veterans in the SUD cohort with alcohol dependence with documentation that pharmacotherapy was offered or contraindicated within 30 days of the start of an NTE (SUD 4 (e))	Medical record
Brief intervention (SUD)	Proportion of veterans in the SUD cohort with documentation of a brief intervention, current specialty care, or a completed referral to specialty mental health during the study period (SUD 3 (1d))	Medical record
Integrated treatment (Co-occurring SUD)	Proportion of veterans with co-occurring SUD with documentation of any visits that treated both their SUD and their mental health disorder on the same day within 3 months of a new treatment episode (Co-occurring SUD 2 (c))	Medical record

Table 6.6. Chronic-Disease Management Performance Indicators

Indicator	Description	Data Source
Mood-stabilizer supply (BP)	Proportion of veterans in the bipolar disorder cohort with a 12-months supply, less than a 12-months supply, or no filled prescriptions for mood-stabilizer medications (bipolar disorder C)	Administrative
Antipsychotic supply (SCHIZ)	Proportion of veterans in the schizophrenia cohort with a 12-months supply, less than a 12-months supply, or no filled prescriptions for an antipsychotic medication during the study period (schizophrenia B)	Administrative

VARIATION BY GENDER

The mental health needs of women are a growing public policy concern. There are gender differences in the rates of common mental disorders. As noted in Table 3.2, women made up 14 percent of the bipolar cohort of our study population and 13 percent of the MDD cohort, but only 6 percent of the schizophrenia and PTSD cohorts and 4 percent of the SUD cohort. There is a growing body of research on sex-based differences in treatment approaches, responses to treatment, and the speed and accuracy of diagnosis. Some studies have shown that women receive better quality mental health care (Asch et al., 2006), while others show the opposite (Bird et al., 2007; Borkhoff et al., 2008; Ferrara et al., 2008; Keyhani et al., 2008). Overall, women use more services than men and in general are more likely to have an office or outpatient visit (Ro et al., 2004). Women receive more mental health treatment than men in both the general health and mental health specialty sectors (Hauenstein et al., 2006).

Addressing the mental health needs of women is an increasingly salient issue for the VHA, as women represent a growing share of its mental health utilization. The VHA began providing medical and

psychosocial services for women in 1988, when women constituted 4.4 percent of all veterans. As of 2010, women veterans make up approximately 8 percent of the total U.S. veteran population (Department of Veterans Affairs Office of Policy and Planning, 2007). Among the FY 2007 study cohort, 780,822 veterans (93.3 percent) were male and 55,877 veterans (6.7 percent) were female.

Variations in Characteristics

We found significant differences between male and female veterans in the study population. The male population was older, with a modal age range of 55–64; the modal age range for females was 45–54. This distribution likely reflects women's inclusion in the armed services in larger numbers beginning with the start of the All Volunteer Force in 1973. As in the study population, the large majority of veterans included in the medical-record review and the veteran survey were male (91 percent). Table 6.7 shows descriptive indicators of utilization and self-reported functioning, by gender. Women were more likely than men to receive any psychosocial treatments (69.6 percent versus 62.4 percent) and any psychotherapeutic encounters (44.9 percent versus 37.4 percent) following an NTE, but they received fewer psychosocial and psychotherapeutic visits, on average.

Table 6.7. Veteran Characteristics, by Gender
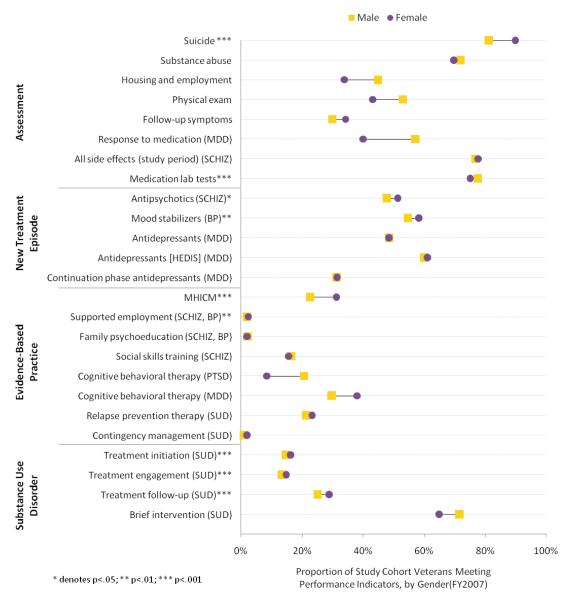
Administrative Data Information	Men	Women
Mean number of evaluation and management (E&M) encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication***	3.9	4.4
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting ***	62.4	69.6
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	11.4	9.6
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting***	37.4	44.9
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting***	7.9	7.0
Percentage of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge***	77.7	83.7
Veteran Survey Information		
Mental health functioning: mean MCS score*	35.6	33.8
Physical health functioning: mean PCS score**	31.3	33.7
Overall rating of general health: mean***	2.4	2.7

NOTE: Statistically significant variation across groups is denoted by asterisks above the indicator label (* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$).

Variations in Performance Indicators

In the general U.S. population, gender differences in the receipt of quality health care have been observed (*Women's Health Issues*, 2006). Our evaluation also found observed differences in performance indicator results by gender. These differences are summarized in Figure 6.1 and discussed in more detail below.

Figure 6.1. Proportion of Study-Cohort Veterans Meeting Performance Indicators, by Gender, Using Medical Record and Administrative Data, FY 2007[39]

Indicators in Figure 6.1 are listed along the y-axis, and the x-axis represents the proportion of veterans in the indicator denominator who meet the indicator. The purple circles represent indicator performance for

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[39] Note that these indicators were evaluated using a combination of administrative data, available for 836,669 veterans, and medical record data, available for 7,069 veterans. The size of the effect detectable with statistical-significance testing thus varies greatly between the two data sources. For example, while the 1.6-percentage-point difference in the treatment initiation (SUD) indicator is highly significant (p < 0.001), the 12.2-percentage-point difference for the CBT (PTSD) indicator is not significant (p> = 0.05). It is important to note that the treatment-initiation (SUD) indicator was assessed using administrative data across 223,713 veterans who qualified for that indicator, while the CBT (PTSD) indicator was assessed using medical record data across only 530 of 7,069 veterans who qualified for that indicator. Thus, it is important to assess both the statistical and practical significance of variations in administrative-data indicators.

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females, and the yellow squares report performance for males. The horizontal black line between the purple circles and yellow squares represents the difference between the two characteristic groups. Statistically significant differences between the characteristic groups are denoted by asterisks above the indicator label. Because these indicators were also evaluated using a combination of administrative data and medical record data, the magnitude of statistically significant differences varies greatly depending on the data source. We omit indicators when the effective sample size of either characteristic group is less than 30.
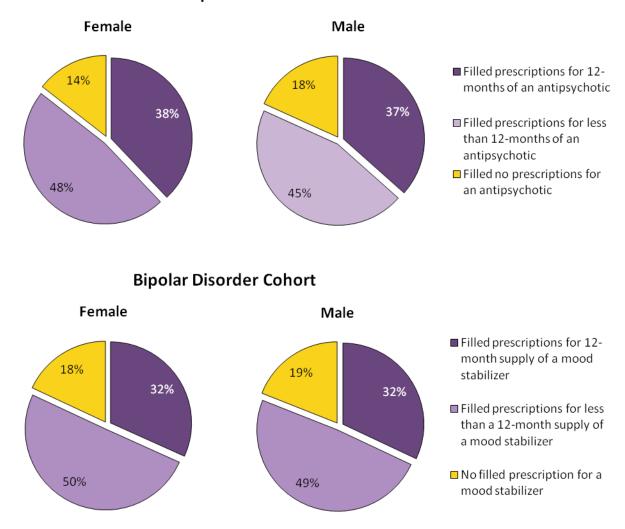
Assessment: Eight indicators of assessment were examined by gender, with levels of documentation ranging from 30 percent (follow-up symptoms) to 90 percent (suicide ideation). Two indicators varied significantly by gender. Females were 9 percentage points more likely than males to have a documented assessment for suicide ideation, and men were also significantly more likely than women to receive all recommended tests during the study period (medication lab tests), though the difference was only 2.5 percentage points.

Treatment: NTE. Five indicators focusing on medication during an NTE were examined by gender. There was significant variation by gender for two indicators. Women were significantly more likely than men to receive a 12-week supply of antipsychotic (antipsychotics (SCHIZ)) or antidepressant (antidepressants (MDD)) medication in the 12 weeks following the start of an NTE.

Treatment: EBP. Eight indicators of EBP were examined by gender, with levels of documentation ranging from l percent or less (contingency management for SUD) to 40 percent (CBT for MDD). There was significant variation by gender for two indicators. Women were 9 percentage points more likely than men to use MHICM during the study period and slightly (<1 percentage point) more likely to use supported employment.

Treatment: SUD. Four SUD indicators focusing on treatment and appropriate care were examined by gender. Three indicators showed significant variation by gender, with women having higher rates of treatment initiation, treatment engagement, and treatment follow-up, although the absolute difference was less than 4 percentage points in each case.

Chronic Disease Management: As shown in Figure 6.2, there was little variation in medication supplies by gender. Among veterans in the schizophrenia cohort, men were slightly more likely than women to fill no prescriptions for antipsychotics (18 percent versus 14 percent).

Figure 6.2. Medication Supply from Filled Prescriptions During Study Period

Schizophrenia Cohort

Female

14%
48%
38%

Male

18%
45%
37%

■ Filled prescriptions for 12-months of an antipsychotic

■ Filled prescriptions for less than 12-months of an antipsychotic

■ Filled no prescriptions for an antipsychotic

Bipolar Disorder Cohort

Female

18%
50%
32%

Male

19%
49%
32%

■ Filled prescriptions for 12-month supply of a mood stabilizer

■ Filled prescriptions for less than a 12-month supply of a mood stabilizer

■ No filled prescription for a mood stabilizer

Across all performance indicators, there was statistically significant variation, with higher performance among women than among men for eight indicators. We found higher performance among men on only one indicator (medication lab tests), although the difference was only 2.5 percentage points. We did not observe statistically significant differences by gender for the remaining 16 indicators. The largest differences were for rates of suicide assessment and MHICM utilization; women were nearly 9 percentage points more likely than men to be assessed for suicide ideation or to use MHICM during the study period.

VARIATION BY AGE

Older adults are known to be underserved in mental health care treatment and services. Although persons age 65 and over are estimated by the U.S. Census Bureau to constitute approximately 12.7 percent of the U.S. population, the proportion of mental health services used by older adults is estimated at approximately 2 percent of private services, between 4 percent and 7 percent of community mental health

services, and about 9 percent of inpatient psychiatric care (Robb, Chen, and Haley, 2002). The National Comorbidity Study Replication showed that elders with mental disorders were less likely to receive any treatment, and individuals below the age of 31 had higher rates of care than those over the age of 64 (Asch et al., 2006). Economic barriers are also different for older adults than for others, and there are differences in education, income, and lifetime accumulation of wealth between older and younger adults (Crystal and Shea, 1990). Additional evidence suggests that a perceived stigma associated with mental illness may predict early discontinuation of treatment in elderly patients (Sirey et al., 2001).

Variations in Characteristics

Across the data sources, the 55–64 age group was the largest cohort, constituting approximately 40 percent of veterans. The smallest group was the 18–34 age group, followed by the 35–44 age group. The mean age of all included veterans was 56.2 years (standard deviation = 12.7). Table 6.8 shows descriptive indicators of utilization and self-reported functioning by age. Overall, we found significant variation. Veterans in the oldest age group (65+) were least likely to receive any psychosocial treatments or any psychotherapeutic encounters following an NTE. Older veterans also tended to report higher mental health functioning (MCS score) and lower physical health functioning (PCS score) than younger veterans. Nearly 60 percent of veterans in the youngest age group (<35) were OEF/OIF veterans, and 18 percent were women.

Table 6.8. Veteran Characteristics, by Age
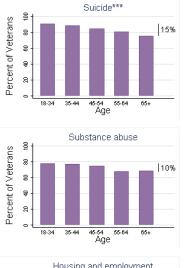
Administrative Data Information	Age				
	18–34	35–44	45–54	55–64	65+
Mean number of E&M encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication***	3.7	4.1	4.4	3.8	3.5
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting ***	68.2	70.0	67.5	60.4	45.9
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	8.0	12.6	14.7	10.1	6.1
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting***	42.6	44.4	40.9	36.2	23.9
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting***	5.8	8.3	9.6	7.5	5.1
Percentage of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge***	80.2	80.9	77.8	78.5	71.7
Veteran Survey Information					
Mental health functioning: mean MCS score***	32.1	33.5	35.1	35.0	39.1
Physical health functioning: mean PCS score***	40.6	33.4	31.8	30.5	30.2
Overall rating of general health: mean***	2.8	2.5	2.5	2.4	2.5
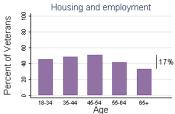
NOTE: Significance testing was conducted using F-tests for continuous and count indicators and chi-squared tests for categorical or dichotomous indicators. Statistically significant variation across age groups is denoted by asterisks above the indicator label (* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$).
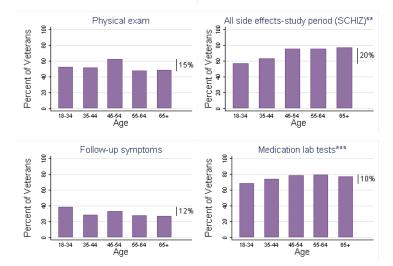
Variations in Performance Indicators
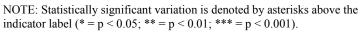
We also observed variation in performance indicator results by age. An overview of data for these indicators is provided in Figures 6.3 through 6.6, and key findings are summarized below. Each graph represents a single performance indicator. The five age groups are listed along the x-axis, and the y-axis shows the proportion of veterans in each age cohort who satisfy the performance indicator. The vertical black line along the right shows the largest absolute difference between age groups. Statistically significant variation by age is denoted by asterisks above the indicator label.

Figure 6.3. Study-Cohort Veterans Meeting Assessment Performance Indicators, by Age, Using Medical Record and Administrative Data, FY 2007

NOTE: Statistically significant variation is denoted by asterisks above the indicator label (* = p < 0.05; ** = p < 0.01; *** = p < 0.001).
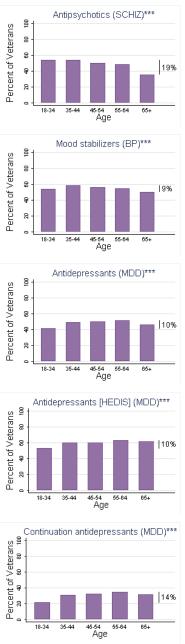
The first chart in figure 6.3 shows the proportion of veterans in each age group with documentation of suicide assessment during the study period. About 90 percent of veterans in the 18–34 age group satisfied the measure, compared with 75 percent of veterans in the 65+ age group. This 15-percentage-point difference is demarcated to the right. Across all age categories, there was significant (p < 0.001) variation in rates of suicide assessment.

Seven indicators of assessment were examined by age group, with levels of documentation ranging from 30 percent (follow-up symptoms) to 91 percent (suicide). Three of the selected indicators varied significantly by age:

- Suicide: Having documentation of a suicide assessment decreased with age. Veterans in the 18–34 age groups were most likely, at 91 percent, while those in the 65 and older age group were least likely, at 75 percent.[40]

- All side effects (SCHIZ): Having documentation was 20 percentage points higher among veterans 65 and older (76 percent) than among veterans in the 18–34 age group (55 percent).

- Medication lab tests: This indicator is based on the study population. The greatest difference, 10 percentage points, was noted between veterans in the 55–64 group at 79 percent and veterans in the 18–34 group at 68 percent.

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[40] The maximum difference in assessment rates is noted as 15 percentage points in the figure but 16 percentage points in the text (91 percent – 75 percent = 16 percent). This difference is due to additional rounding error in the text.

Figure 6.4. Study-Cohort Veterans Meeting NTE Performance Indicators, by Age, Using Medical Record and Administrative Data, FY 2007

Five indicators focusing on medication during an NTE were examined for variations by age. Levels of documentation ranged from 31 percent (continuation-phase antidepressants for MDD cohort) to 63 percent (antidepressants, HEDIS). Variation by age was significantly different for all five indicators:

- Antipsychotics (SCHIZ): The percentage of antipsychotic prescription fills among veterans 18–34 years of age (54 percent) was 19 percentage points less than the percentage noted among veterans 65 and older (35 percent).

- Mood stabilizers (BP): The percentage of mood-stabilizer prescription fills among veterans 65 and older (50 percent) was 8 percentage points less than the percentage noted among veterans 35 to 44 years of age (58 percent).

- Antidepressants (MDD): Rates of prescriptions for antidepressants were 10 percentage points higher for veterans in the 55–64 age group (51 percent) than for veterans in the 18–34 age group (42 percent).

- Antidepressants, HEDIS (MDD): Rates of prescriptions filled for antidepressants were 7 to 10 percentage points higher for veterans 35 years of age and older (60 to 63 percent) than for veterans 18 to 34 years of age (53 percent).

- Continuation-phase antidepressants (MDD): Rates of continuation-phase antidepressants were 10 to 14 percentage points higher for veterans 35 and older (31 to 35 percent) than for veterans in the 18–34 age group (21 percent).

Note: Statistically significant variation is denoted by asterisks above the indicator label (* denotes $p < .05$; ** denotes $p < .01$; *** denotes $p < .001$).

Figure 6.5. Study-Cohort Veterans Meeting EBP Performance Indicators, by Age, Using Medical Record and Administrative Data, FY 2007
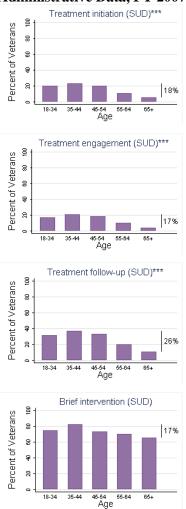
Seven indicators of EBP were examined by age group, with levels of documentation ranging from l percent or less (contingency management (SUD)) to 31 percent (CBT (MDD)). There was significant variation by age for three of the seven indicators:

- MHICM utilization: Rates varied significantly by age, with veterans in the 45–55 age group being most likely to use MHICM (26 percent).

- Supported employment (SCHIZ, BP): Rates were highest for veterans age 44 or younger (3 percent) and lowest for veterans 65 or older (<1 percent).

- Family psychoeducation: The youngest veterans (the 18–34 age group) were most likely to receive this service (3 percent), while veterans in the 55–64 age group were least likely (2 percent).

Note: Statistically significant variation is denoted by asterisks above the indicator label (* = p < 0.05; ** = p < 0.01; *** = p < 0.001).

Figure 6.6. Study-Cohort Veterans Meeting SUD Performance Indicators, by Age, Using Medical Record and Administrative Data, FY 2007

Four SUD indicators focusing on treatment and appropriate care were examined by age. Levels of documentation ranged from 13 percent (timely treatment (SUD)) to 82 percent (brief intervention (SUD)). Variation by age was significant for three of the four indicators:

- Treatment initiation (SUD): veterans 65 and older had the lowest percentage for this indicator (6 percent). The rate for veterans age 35–44, the age group with the highest rate, was about four times higher (23 percent).

- Treatment engagement (SUD): veterans in the 35–44 age group were 17 percentage points more likely than veterans in the oldest age group to satisfy this measure.

- Treatment follow-up (SUD): percentages for this indicator were highest for veterans in the 35–44 age group (37 percent) and lowest for veterans 65 and older (11 percent)

NOTE: Statistically significant variation is denoted by asterisks above the indicator label (* = p < .005; ** = p < 0.01; *** = p < 0.001).

There was significant variation by age for 14 of the 23 performance indicators. There was also statistically significant variation in performance, with younger veterans having better documented rates of care for three performance indicators: suicide assessment, antipsychotics, and supported employment. Performance for veterans in the 18–34 and 35–44 age groups was highest on seven indicators, while performance among veterans in the oldest age group (65+) was highest for only one indicator (all side effects study period (SCHIZ)).

While these results describe significant variation in treatment processes across age categories, factors that might explain this variation are not identified. The observed variations do not account for the possibility that some services may be less appropriate for or applicable to older veterans, or that treatment preferences may vary by age. For example, families of older veterans with chronic disorders are more likely to have had family psychoeducation before the start of the study period.

VARIATION BY OEF/OIF STATUS

OEF/OIF service members are the newest generation of veterans. OEF/OIF veterans have faced longer deployments, more frequent redeployments, and fewer breaks between deployments than veterans from prior conflicts (Belasco, 2007; Hosek, Kavanagh, and Miller, 2006). Further, improvements in body armor and medical care mean that many service members are surviving major blast-related injuries and require specialized treatment. Recent research suggests that nearly one-fifth of service members returning from OEF/OIF have probable PTSD or depression and that about half of these individuals have sought treatment. Among those with probable PTSD or depression, nearly 40 percent also reported experiencing traumatic brain injury, which can have long-lasting cognitive effects and can complicate mental health treatment (Tanielian et al., 2008). Consequently, the VA and other mental health care providers have placed urgent emphasis on developing effective policy solutions and providing effective treatments for OEF/OIF veterans. For these reasons, OEF/OIF veterans constitute an especially important subgroup in this evaluation.

Variations in Characteristics and Utilization

We identified 114,380 unique OEF/OIF veterans who received care provided or paid for by the VHA for study-related conditions during FY 2004–FY 2008 inclusive, or 7.3 percent of the total unique study-cohort veterans for that period. In comparison, 3.8 percent of the medical-record sample and 4.2 percent (n = 259) of the survey respondents served in OEF/OIF. In FY 2008, the majority of OEF/OIF veterans were younger than 35 years of age, compared with only 3 percent of non-OEF/OIF veterans. As previously described, the variation in effect detectable for a given level of statistical significance varies considerably between the administrative-data indicators and those from the medical-record review or veteran survey sample. Thus, it is important to assess both the statistical and practical significance of variations in administrative-data indicators. Table 6.9 shows descriptive indicators of utilization and self-reported functioning by OEF/OIF status. OEF/OIF veterans were more likely than non-OEF/OIF veterans to receive any psychosocial treatments (67.7 percent versus 62.3 percent) and any psychotherapeutic encounters (44.5 percent versus 37.1 percent) following an NTE, but they received fewer psychosocial and psychotherapeutic visits, on average. OEF/OIF veterans also reported lower mental health functioning (MCS = 31.6 versus 35.7; $p < 0.001$) but higher physical health functioning (PCS = 37.0 versus 31.1; $p < 0.001$) than non-OEF/OIF veterans.
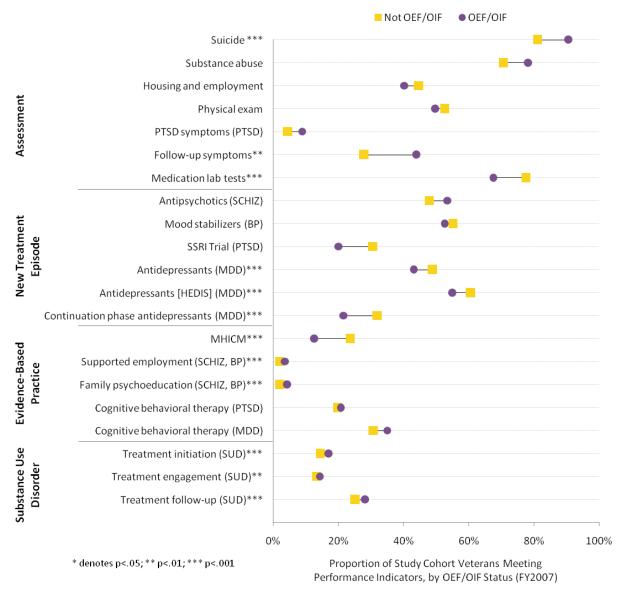
Table 6.9. Veteran Characteristics, by OEF/OIF Status

Administrative Data Information	OEF/OIF	Non-OEF/OIF
Mean E&M encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication***	3.6	4.0
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	67.7	62.3
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	7.3	11.8
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting***	44.5	37.1
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting***	5.4	8.2
Percentage of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge***	83.1	77.9
Veteran Survey Information		
Mental health functioning: mean MCS score***	31.6	35.7
Physical health functioning: mean PCS score***	37.0	31.1
Overall rating of general health: mean*	2.6	2.4

NOTE: Statistically significant variation is denoted by asterisks above the indicator label (* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$).

Variations in Performance Indicators

Figure 6.7 summarizes differences in performance indicator results by OEF/OIF status; key findings are summarized below.

Figure 6.7. Study-Cohort Veterans Meeting Performance Indicators, by OEF/OIF Status, Using Medical Record and Administrative Data, FY 2007

* denotes p<.05; ** p<.01; *** p<.001

Assessment: We examined seven indicators of assessment by OEF/OIF characterization, with levels of documentation ranging from 4 percent (e.g., PTSD symptoms) to 91 percent (suicide ideation). Three indicators varied significantly by OEF/OIF status. OEF/OIF veterans were significantly more likely than non-OEF/OIF veterans to have a documented assessment for suicide ideation or to have their symptoms reassessed (follow-up symptoms) and significantly less likely to have documented medication lab tests.

Overall, 10 percentage points more veterans designated as OEF/OIF had documentation of suicide ideation, and 15 percentage points more veterans with this designation had documentation of follow-up symptoms.

NTE: Six indicators focusing on medication during an NTE were examined by OEF/OIF status. Levels of documentation ranged from 19 percent (SSRI trial PTSD) to 61 percent (antidepressants, HEDIS). Variation by OEF/OIF status was significant for three of the six indicators (all based on population, using administrative data):
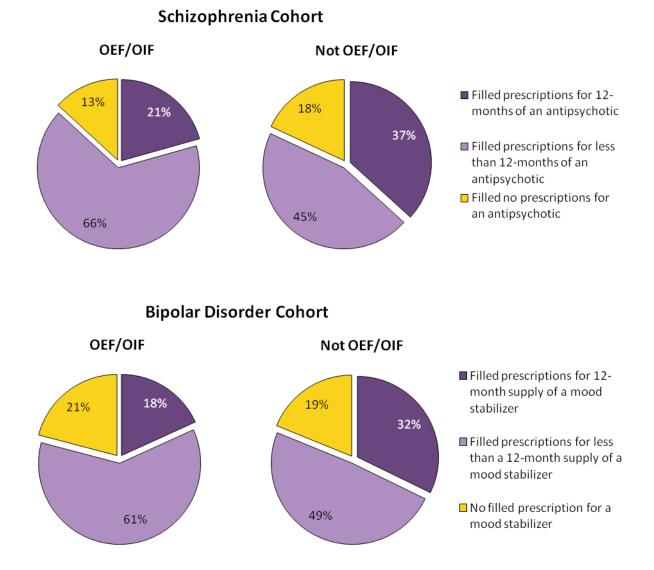
- Antidepressants, HEDIS: Rates of prescriptions filled for antidepressants by veterans in the OEF/OIF group were 6 percentage points lower than the rate for non-OEF/OIF veterans.

- Antidepressants, MDD: Rates of prescriptions for antidepressants for veterans in the OEF/OIF group were 6 percentage points lower than the rate for non-OEF/OIF veterans.

- Continuation-phase antidepressants: Rates of continuation-phase antidepressants for OEF/OIF veterans were 10 percentage points lower than those for non-OEF/OIF veterans.

EBP: Five indicators of EBP were examined by OEF/OIF status, with levels of documentation ranging from 2 percent (family psychoeducation) to 35 percent (CCT (MDD)). The largest absolute difference was observed for the MHICM measure, where OEF/OIF veterans were 11 percentage points less likely to have documented receipt of MHICM during the study period than non-OEF/OIF veterans.

SUD: Three SUD indicators focusing on treatment were examined by OEF/OIF status. Levels of documentation ranged from less than 15 percent (treatment initiation SUD) to 28 percent (treatment follow-up SUD). There was statistically significant variation by OEF/OIF status for all three indicators, but the absolute differences were no more than 3 percentage points in each case.

Chronic-Disease Management: Figure 6.8 shows medication supplies by OEF/OIF status. OEF/OIF veterans in the schizophrenia cohort were 16 percentage points less likely to receive a 12-month supply of antipsychotics than non-OEF/OIF veterans, and OEF/OIF veterans in the bipolar-disorder cohort were 14 percentage points less likely to receive a 12-month supply of mood stabilizers. In both cases, most of the discrepancy is attributable to the greater proportion of OEF/OIF veterans who filled prescriptions for less than 12 months of medication, rather than the proportion of those with no filled prescriptions.

OEF/OIF veterans had significantly higher scores than non-OEF/OIF veterans on seven indicators and significantly worse scores on five indicators; we did not observe significant variation by OEF/OIF status for the remaining nine indicators. The largest difference was for follow-up symptoms, where OEF/OIF veterans were more than 16 percentage points more likely to have their symptoms reassessed than non-OEF/OIF veterans. We observed other large differences in MHICM utilization and continuation-phase antidepressants (MDD), where OEF/OIF veterans were more than 10 percentage points less likely to use MHICM or to receive a 180-day supply of antidepressants following an NTE. The observed variation in 12-month antipsychotic and mood-stabilizer use is particularly concerning, since OEF/OIF veterans are, on average, younger than other veterans, and research supports the positive effect of early intervention on subsequent morbidity and mortality (Wyatt and Henter, 2001).

Figure 6.8. Medication Supply During the Study Period, by OEF/OIF Status, FY 2007

Schizophrenia Cohort

OEF/OIF: 13%, 21%, 66%

Not OEF/OIF: 18%, 37%, 45%

- Filled prescriptions for 12-months of an antipsychotic
- Filled prescriptions for less than 12-months of an antipsychotic
- Filled no prescriptions for an antipsychotic

Bipolar Disorder Cohort

OEF/OIF: 21%, 18%, 61%

Not OEF/OIF: 19%, 32%, 49%

- Filled prescriptions for 12-month supply of a mood stabilizer
- Filled prescriptions for less than a 12-month supply of a mood stabilizer
- No filled prescription for a mood stabilizer

VARIATION BY RURAL/URBAN STATUS

Higher rates of chronic illness and poor overall health are found in rural communities than in urban populations. Rural residents are, on average, older, poorer, and have fewer physicians to care for them. This inequality is intensified by the fact that rural residents are less likely to have employer-provided health care coverage; and if they are poor, they are often not covered by Medicaid (Rural Assistance Center, 2010). Geographic isolation, socioeconomic status, health risk behaviors, and limited job opportunities contribute to health variations in rural communities. Much research has documented the variation in health care across the United States (O'Connor et al., 1999; Wennberg, 1984).

Variations in mental health and mental health care persist in rural America as well. Nearly 60 million Americans living in rural and frontier areas suffer from mental health disorders; in fact, the prevalence of mental illness, substance abuse, and related disabilities is equal to or greater than that in urban settings. The greatest variation is in the western United States, where the rate of mental disorders in most rural

counties is nearly 80 percent greater than the rate in urban areas (National Organization of State Offices of Rural Health, 2009).

Yet, according to the National Comorbidity Study Replication, persons with mental disorders who live in rural areas are less likely to receive any treatment than those in urban areas (Asch et al., 2006). This variation has led some to call for an increase in quality and access to behavioral/mental health care services for rural Americans (National Organization of State Offices of Rural Health, 2009).

Given these variations and the fact that veterans are far more likely than non-veterans to reside in rural areas (Richardson and Waldrop, 2003), the health of rural veterans has become an increasing focus of VHA care. In December 2006, the VHA Office of Rural Health was established to better meet the needs of the approximately 3 million enrolled veterans living in rural areas. Since then, it has begun the rural health strategic plan, with a focus on improving access and quality of care for veterans through the use of technology, research, provider training, and innovative recruitment strategies. In this section, we examine the variation in mental health and substance abuse treatment services for veterans by rural/urban status.

Variations in Veteran Characteristics

Overall, approximately 24 percent of FY 2007 cohort veterans lived in areas designated as rural. We did not have sufficient information to characterize another approximately 1 percent of respondents as living in rural versus urban areas. In FY 2008, 67 percent of rural residents were 55 years of age or older, compared with 59 percent of urban residents. Table 6.10 presents descriptive indicators of utilization and self-reported functioning by rural/urban status. Rural residents were less likely than urban residents to receive any psychosocial treatments (59.2 percent versus 64.0 percent) or any psychotherapeutic encounters (34.1 percent versus 38.9 percent) following an NTE. Rural residents also received fewer psychosocial and psychotherapeutic visits, on average.

Table 6.10. Veteran Characteristics, by Rural/Urban Status

Administrative Data Information	Rural	Urban
Mean number of E&M encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication***	3.4	4.1
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	59.2	64.0
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	9.5	11.7
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting***	34.1	38.9
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting***	6.7	8.2
Percentage of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge**	76.9	78.5
Veteran Survey Information		
Mental health functioning: mean MCS score	35.3	35.5
Physical health functioning: mean PCS score***	29.8	32.0
Overall rating of general health: mean*	2.4	2.5
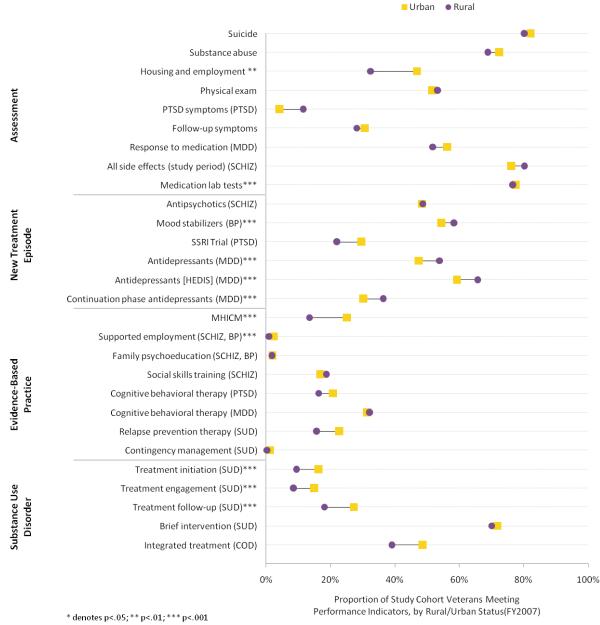
NOTE: Statistically significant variation across groups is denoted by asterisks above the indicator label (* = p < 0.05; ** = p <0 .01; *** = p < 0.001).

Variations in Performance Indicators

Figure 6.9 summarizes differences in performance-indicator results by rural/urban status; key findings are summarized below.[41]

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[41] The difference between urban and rural veterans was not significant when veteran characteristics were controlled for; in particular, older veterans were significantly more likely to be assessed than younger veterans.

Figure 6.9. Study-Cohort Veterans Meeting Performance Indicators, by Rural/Urban Status, Using Medical Record and Administrative Data, FY 2007

Proportion of Study Cohort Veterans Meeting Performance Indicators, by Rural/Urban Status(FY2007)

* denotes p<.05; ** p<.01; *** p<.001

Assessment: We examined nine indicators of assessment by location (rural/urban), with levels of documentation ranging from 4 percent (e.g., PTSD symptoms) to 82 percent (suicide ideation). Two indicators varied significantly by rural/urban location. Urban residents were 15 percentage points more likely to have a documented assessment for housing and employment needs than rural residents and were 1 percentage point more likely to receive all recommended medication lab tests.

NTE: We examined six indicators focusing on medication during an NTE by rural/urban location of veterans. Levels of documentation ranged from 23 percent (SSRI trial PTSD) to 66 percent (antidepressants, HEDIS). Variation by rural/urban status was significant for four of the six indicators (all based on population, using administrative data):
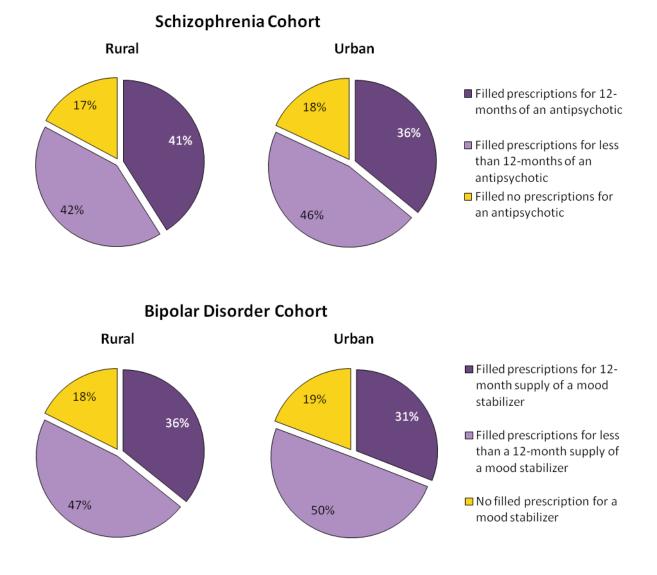
- Mood stabilizers: Rural residents in the bipolar-disorder cohort were about 4 percentage points more likely than urban residents to fill a prescription for a 12-week supply of a mood-stabilizing agent within 12 weeks of an NTE.

- Antidepressants, HEDIS: Rates of prescriptions filled for antidepressants for rural veterans were 7 percentage points higher than the rate for veterans in urban locations.

- Antidepressants, MDD: Rates of prescriptions filled for antidepressants were 7 percentage points higher for rural veterans than the rate for veterans in urban locations.

- Continuation-phase antidepressants: Rates of continuation-phase antidepressants were 6 percentage points higher for rural veterans than the rate for urban veterans.

EBP: We examined eight indicators of EBP by rural/urban location, with levels of documentation ranging from l percent or less (contingency management for SUD) to 32 percent (CBT (MDD)). Two indicators showed significant variation. The largest difference was observed for the MHICM measure, with urban residents 12 percentage points more likely than rural residents to have documented receipt of MHICM in the study period.

SUD: We examined five SUD indicators focusing on treatment and appropriate care, by rural/urban location. Levels of documentation ranged from 9 percent (treatment initiation for SUD) to 72 percent (appropriate care). Three indicators showed significant variation.

Chronic-Disease Management: Figure 6.10 shows medication supplies by rural/urban status. Rural residents in the schizophrenia and bipolar-disorder cohorts were 5 percentage points more likely to receive a 12-month supply of antipsychotics and mood stabilizers than urban veterans.

Across all performance indicators, performance was better for rural residents than for urban residents on four indicators and worse on eight indicators; we did not observe significant variation by rural/urban status for the remaining 16 indicators. We observed the largest differences for housing and employment assessment (14.5-percentage-point difference), MHICM (11.6-percentage-point difference), and treatment follow-up (SUD) (9.2-percentage-point difference), with urban residents experiencing better care in each case.

Figure 6.10. Medication Supply During the Study Period, by Rural/Urban Status, FY 2007

Schizophrenia Cohort

Rural: 17%, 41%, 42%
Urban: 18%, 36%, 46%

- Filled prescriptions for 12-months of an antipsychotic
- Filled prescriptions for less than 12-months of an antipsychotic
- Filled no prescriptions for an antipsychotic

Bipolar Disorder Cohort

Rural: 18%, 36%, 47%
Urban: 19%, 31%, 50%

- Filled prescriptions for 12-month supply of a mood stabilizer
- Filled prescriptions for less than a 12-month supply of a mood stabilizer
- No filled prescription for a mood stabilizer

VARIATION BY DIAGNOSTIC COHORT

Variations in the Study Cohort

We examined variation by mental health diagnostic cohort for a small number of cross-cutting indicators. Table 6.11 presents descriptive indicators of utilization and self-reported functioning by diagnostic cohort. While there was no clear pattern in basic utilization across diagnostic cohorts, veterans in the schizophrenia cohort reported the highest mental health functioning (mean MCS score), the highest physical health functioning (mean PCS score), and the highest overall rating of general health, while veterans in the PTSD cohort reported the lowest scores for each indicator of functioning and health.

Table 6.11. Veteran Characteristics, by Mental Health Diagnostic Cohort

Administrative Data Information	Bipolar	MDD	PTSD	Schizophrenia
Mean number of E&M encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication***	4.5	3.9	3.9	4.2
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	74.3	68.4	64.9	67.6
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting***	11.9	8.6	9.0	11.7
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting***	42.5	40.3	43.1	32.5
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting***	7.7	6.1	6.8	7.2
Proportion of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge***	81.3	78.1	82.1	78.7
Veteran Survey Information				
Mental health functioning: mean MCS score***	37.4	35.7	33.3	38.7
Physical health functioning: mean PCS score***	34.3	31.2	30.3	35.5
Overall rating of general health: mean***	2.7	2.4	2.3	2.7

NOTE: Statistically significant variation across groups is denoted by asterisks above the indicator label (* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$).

Variations in Performance Indicators

Although most indicators were either cohort-specific or had sample sizes that were too small to examine by cohort, we did examine variation by mental health diagnostic cohort for three cross-cutting indicators, which were populated by administrative data:
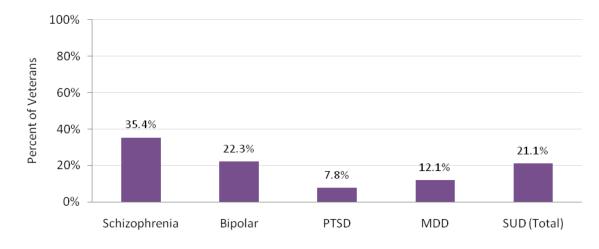
- Medication lab tests: Proportion of study veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication who received all recommended blood-level monitoring tests during the study period.

- Supported employment (SCHIZ, BP): Proportion of veterans in the schizophrenia or bipolar-disorder cohort or with psychosis and using supported employment during the study period.

- MHICM: Proportion of study veterans using MHICM.

Variation by diagnostic cohort was significant (p < 0.001) for each of the three indicators, although the absolute differences were small in some cases. Rates of supported employment varied no more than 1 percentage point across diagnostic cohorts, with veterans in the MDD cohort most likely to receive any supported employment during the study period (2.3 percent) and veterans in the PTSD cohort least likely (1.4 percent). We observed larger absolute differences in rates of medication lab tests (Figure 6.11) and MHICM utilization (Figure 6.12), with the largest differences in MHICM utilization. The differences in MHICM utilization are not surprising, as one would not expect equivalence of use across cohorts.

Figure 6.11. Study Veterans with One or More Filled Prescriptions for Lithium, Valproic Acid, Carbamazepine, or Any Antipsychotic Medication Who Received All Recommended Blood-Level Monitoring Tests, by Diagnostic Cohort, During the Study Period, FY 2007

Figure 6.12. Study Veterans Using MHICM, by Diagnostic Cohort, FY 2007

VARIATION BY VISN

Variations in the Study Cohort

VISNs—service networks designed to pool and align resources to meet local health care needs and provide greater access to care, described in Chapter 2—have non-overlapping geographic areas of responsibility, delineated by county boundaries. Variations across VISNs are undesirable, because they might show that veterans in some areas of the country have less access or are receiving lower-quality care than those in other areas. (See Woodroffe et al., 2010, for additional information on regional variations captured in analyses from our facility surveys.) Table 6.12 presents the maximum and minimum VISN results for descriptive indicators of utilization and self-reported functioning. Across VISNs, the proportions of veterans who received any psychosocial treatment and any psychotherapeutic encounters following an NTE varied by about 10 and 14 percentage points, respectively. The mean number of psychosocial and psychotherapeutic visits across VISNs ranged from 6.9 to 19.9 for psychosocial visits and 4.0 to 12.0 for psychotherapeutic visits. There was little variation in self-reported mental or physical health functioning by VISN.

Table 6.12. Veteran Characteristics, VISN Minimum and Maximum

Administrative Data Information	VISN Minimum	VISN Maximum
Mean number of evaluation and management (E&M) encounters with a licensed prescribing provider in the 4 months following the start of an NTE for veterans in continuous treatment with a psychiatric medication	3.4	5.5
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting	57.7	68.0
Mean number of psychosocial treatment or psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving any psychosocial treatment or psychotherapeutic encounters in the outpatient setting	6.9	19.9
Percentage of veterans in an NTE across all diagnostic cohorts receiving any psychotherapeutic encounters in the outpatient setting	32.3	46.1
Mean number of psychotherapeutic encounters for veterans in an NTE across all diagnostic cohorts receiving psychotherapeutic encounters in the outpatient setting	4.0	12.0
Percentage of all veterans across all diagnostic cohorts receiving timely follow-up within 30 days of an acute psychiatric inpatient discharge	71.0	84.4
Veteran Survey Information		
Mental health functioning: mean MCS score	35.0	36.2
Physical health functioning: mean PCS score	30.3	32.6

Note: This table does not incorporate any tests of statistical significance.

Variations in Performance Indicators

Our analysis of variations in care across VISNs found some significant differences. Figure 6.13 provides an overview of results for these indicators; key findings are summarized below.

Indicators are listed along the y-axis, and the x-axis represents the proportion of veterans in the indicator denominator who meet the indicator. Each purple circle represents the results for a single VHA VISN. We omit indicators when the average sample size across VISNs is less than 30. This is a descriptive figure; it does not incorporate any statistical tests of significance.

Figure 6.13. Study-Cohort Veterans Meeting Performance Indicators, by VISN, Using Medical Record and Administrative Data, FY 2007

Assessment: We examined seven indicators of assessment by VISN, with levels of documentation ranging from 25 percent (e.g., PTSD symptoms) to 87 percent (suicide ideation). The variation was greatest for the housing and employment indicator. VISN 10 had a significantly greater than average

proportion of veterans in an NTE who had documentation of both assessments in the first 30 days, and VISN 18 had a significantly lower proportion.

NTE: We examined five indicators focusing on medication during an NTE across VISNs. Levels of documentation ranged from less than 20 percent (SSRI trial PTSD) to 63 percent (antidepressants, HEDIS):

- Antipsychotics (for schizophrenia cohort): There was significant variation across VISNs in the filling of an antipsychotic medication prescription among those veterans with an NTE for schizophrenia. The difference in the proportion of veterans who received an appropriate supply of medication between the lowest- and highest-performing VISNs was 16.4 percentage points. Four VISNs (6, 11, 15, and 23) had significantly higher proportions of veterans in an NTE who received a 12-week supply of antipsychotic medication than the VISN average; four VISNs (5, 8, 18, and 21) had significantly lower proportions than the VISN average.

- Mood stabilizers (for the bipolar-disorder cohort): There was significant variation across VISNs for veterans in the bipolar I diagnostic cohort in the filling of prescriptions for mood stabilizers. The difference in the proportion of veterans who filled prescriptions for an appropriate supply of medication between the lowest-performing and highest-performing VISNs was 11.5 percentage points. Three VISNs (6, 10, and 15) performed significantly better than average; four VISNs (5, 8, 18, and 21) performed significantly below the VISN average.

- Antidepressants, HEDIS: There was significant variation across VISNs in the filling of antidepressant-medication prescriptions among those veterans in an NTE who filled at least one prescription (HEDIS measure). There was a 20-percentage-point difference between the highest- and lowest-performing VISNs for this performance indicator. Six VISNs (9, 15, 19, 20, 22, and 23) performed significantly better than the VISN average, and seven VISNs (3, 5, 7, 8, 12, 16, and 18) performed significantly below the VISN average.

- Antidepressants, MDD: There was significant variation across VISNs in the filling of antidepressant-medication prescriptions among veterans with an NTE for MDD. The difference in the proportion of veterans who filled prescriptions for the appropriate supply of medication between the lowest- and highest-performing performing VISNs was almost 19 percentage points. Five VISNs (4, 9, 15, 20, and 23) performed significantly better than the VISN average, and four VISNs (3, 5, 7, and 8) performed significantly below the VISN average.

- Continuation-phase antidepressants: There was significant variation across VISNs in receipt of continuation-phase antidepressant medication among veterans with an NTE for MDD. The difference in the rate of receipt of an appropriate supply of medication between the lowest performing VISN and the highest was just over 16 percentage points. Five VISNs (4, 9, 15, 20, and 23) performed significantly better than the VISN average, and four VISNs (3, 5, 8, and 16) performed significantly below the VISN average.

EBP: We examined four indicators of EBP. Rates of MHICM utilization differed by 21 percentage points between the highest-performing VISN (8) and the lowest-performing VISN (1). Rates of supported employment, family psychoeducation, and contingency management differed by less than 3 percentage points across VISNs.

SUD: We examined four SUD indicators focusing on treatment. Levels of documentation ranged from 8 percent (timely treatment for SUD) to 77 percent (Brief intervention). We found the following variation among VISNs for the indicators:

- Treatment initiation: There was an 11.2-percentage-point difference across VISNs in treatment initiation. Six VISNs (3, 5, 10, 20, 22, and 23) had proportions above the VISN average, and seven VISNs (1, 2, 6, 8, 9, 15, and 21) had proportions significantly below the VISN average.

- Timely treatment: There was a 10.6-percentage-point difference between the VISNs with the highest and lowest proportions of veterans in timely treatment. Five VISNs (3, 5, 10, 20, and 23) had proportions significantly higher than the VISN average; these same VISNs were among the high performers for treatment initiation. Another seven VISNs (1, 6, 8, 9, 15, 18, and 21) had proportions significantly lower than the VISN average; several of these VISNs were among the low performers for treatment initiation.

- Treatment follow-up: There was substantial variation across VISNs in timely engagement with SUD treatment. Veterans in the VISN with the highest proportion engaging in timely treatment were more than two times more likely to have follow-up than those in the VISN with the lowest proportion engaging in treatment. Seven VISNs (3, 4, 5, 10, 12, 20, and 23) had proportions of veterans with a new SUD treatment episode who engaged in follow-up treatment significantly above the VISN average; four VISNs (6, 8, 9, and 21) had proportions significantly below the VISN average.

- Brief intervention: Only one VISN differed significantly from the average VISN performance for the first part of this indicator—VISN 9 had a significantly lower proportion of veterans with alcohol abuse or dependence who had documentation of appropriate care within the study period.

Chronic-Disease Management: Figures 6.14 and 6.15 show the proportions of veterans in the schizophrenia and bipolar-disorder cohorts who filled prescriptions for a 12-month supply of medication during the study period, by VISN. For the average VISN, 37.3 percent of veterans in the schizophrenia cohort filled prescriptions for a 12-month supply of antipsychotic medication. Seven VISNs performed significantly above the average VISN performance, and seven VISNs performed significantly below. The largest difference between any two VISNs was 19.4 percentage points. For the average VISN, 32.0 percent of veterans in the bipolar-disorder cohort filled prescriptions for a 12-month supply of a mood-stabilizing agent. Seven VISNs performed significantly above the average VISN performance, and seven VISNs performed significantly below. The largest difference between any two VISNs was 12.1 percentage points.
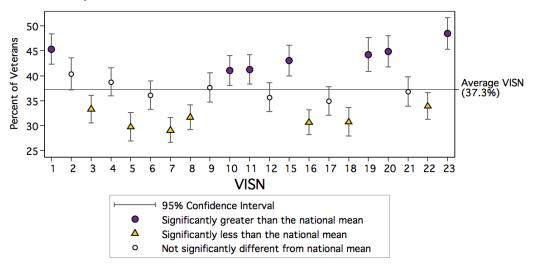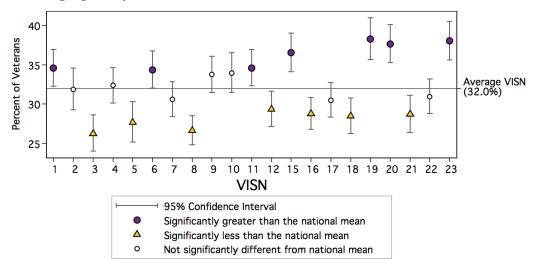
Figure 6.14. Veterans in the Schizophrenia Cohort with a 12-Month Supply of an Antipsychotic Medication, by VISN, FY 2007

Figure 6.15. Veterans in the Bipolar-Disorder Cohort with a 12-Month Supply of a Mood-Stabilizing Agent, by VISN, FY 2007

Across all performance indicators, we observed the largest geographic differences for housing and employment assessment, MHICM utilization, and antidepressant use. Nationally, 44.0 percent of veterans in a NTE had documentation of assessments for both housing and employment needs within 30 days. However, this rate varied by more than 25 percentage points across VISNs, from 31.8 percent in VISN 18 to 58.9 percent in VISN 10. There was also a 23.3-percentage-point difference between the highest- and lowest-performing VISNs in the proportion of veterans with MHICM utilization. While the VHA national average was 23.3 percent, the VISN 1 average was 13.9 percent, and the VISN 8 average was 34.9 percent. There was also large geographic variation in documented antidepressant use following NTEs. Across VISNs, the proportion of veterans in the MDD cohort who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following an NTE ranged from 38.0 percent in VISN 3 to 57.3 percent in VISN 15, a difference of 19.3 percentage points. Finally, there was large variation in the proportion of veterans in the schizophrenia and bipolar-disorder cohorts filling prescriptions for a 12 month supply of medication. The proportion of veterans in the schizophrenia cohort who filled

prescriptions for a 12-month supply of antipsychotics ranged from 29.1 percent of veterans in VISN 7 to 48.5 percent of veterans in VISN 23, a difference of 19.4 percentage points.

LIMITATIONS

Although we evaluated the medical records of 7,069 veterans, many of the performance indicators drawn from the medical record applied to only a small subset of them (e.g., veterans in the bipolar-disorder cohort in an NTE who had been started on a mood stabilizer), which significantly reduced our effective sample size. As a result, while we were able to report results for almost all performance indicators at the national level, our ability to draw conclusions about variations in performance across VISNs and by veteran characteristics for medical record indicators was limited. Additionally, we report only on bivariate analyses. For veteran characteristics that may occur together (e.g., age and OEF/OIF status), we did not examine which characteristic may be driving the variation.

With regard to medical record data, knowledge about the clinical encounter is limited to what is documented in the medical record. We are not able to observe care that was provided but not documented or care that was provided in a different way than was documented in the record. We do not know the reason for any lack of documentation or whether the absence of a care process reflects poor documentation or indicates that the care did not occur. Absence of documentation could reflect either poor documentation or a real failure to deliver care. Often, the real "truth" of what care is delivered by a provider and received by a patient can be discerned only through triangulation among the patient report, the provider report, medical record documentation, and administrative data records. For example, in a study of patients receiving treatment for schizophrenia in public mental health clinics, side effects were documented in only 14 percent of patients who reported significant side effects in patient interviews, and psychotic symptoms were documented in only 48 percent of patients who reported significant psychotic symptoms in patient interviews (Young et al., 1998). To reflect this limitation, we present our results as "documented receipt" of processes of care rather than "received" processes of care. There are also many reasons why a care process might not have occurred, ranging from clinician omission to the lack of a follow-up appointment. Adequacy of documentation has been shown to vary by client characteristics in the general U.S. population and elsewhere, with more severely ill, African-American, and noncompliant patients being at higher risk for poor documentation. We do not know the extent to which these issues apply within the VHA.

Some indicators are likely to be affected less than others by poor documentation. For example, it is likely that concrete measures such as weight or medication prescriptions would be reliably documented and abstracted, whereas it is unlikely that clinicians would document every aspect of a physical or mental status exam. Care must be taken in interpreting these findings, and readers should consider the possible sensitivity of particular measures to errors in documentation.

SUMMARY

We observed variations in performance over every characteristic we examined. Some characteristics varied by as much as 25 percentage points across different subgroups of veterans. In general, performance was lower for veterans under age 35 and over age 65, males, OEF/OIF veterans (which is consistent with the age finding), and veterans residing in rural areas. The following indicators had the largest observed variation:

- Housing and employment assessment, MHICM utilization, and antidepressant use by VISN: Rates varied by more than 25 percentage points across VISNs, from 31.8 percent in VISN 18 to 58.9 percent in VISN 10. There was also a 23.3-percentage-point difference between the highest- and lowest-performing VISNs in the proportion of veterans with MHICM utilization.

- Treatment follow-up for SUD cohort by age: Percentages for this indicator were highest for veterans in the 35–44 age group (37 percent) and lowest for veterans in the 65 and older age group (11 percent)

- Treatment initiation for SUD cohort by age: Veterans in the 65 and older age group had the lowest percentage for this indicator (6 percent). Veterans in the 35–44 age group had the highest rate (23 percent).

- Antipsychotics (for the schizophrenia diagnostic cohort) by age: The percentage of antipsychotic-medication prescriptions filled among veterans 65 and older was 19 percentage points lower than the percentage among veterans 18–34 years of age (35 percent versus 54 percent).

- OEF/OIF veterans in the schizophrenia cohort were 16 percentage points less likely than non-OEF/OIF veterans to receive a 12-month supply of antipsychotics, and OEF/OIF veterans in the bipolar-disorder cohort were 14 percentage points less likely to receive a 12-month supply of mood stabilizers. However, in both cases, most of the discrepancy is attributable to the greater proportion of OEF/OIF veterans who filled prescriptions for less than 12-months of medication rather than to the proportion of those with no filled prescriptions.

- Housing and employment assessment (14.5-percentage-point difference), MHICM (11.6-percentage-point difference), and treatment follow-up (SUD) (9.2-percentage-point difference), with urban residents experiencing better care in each case.

While the quality of documentation may vary by patient and provider characteristics, variation in rates of documentation is unlikely to fully explain the observed performance differences by location and patient characteristics. It is important to note that the presence of variation in care does not necessarily mean disparities are present. Variation may be clinically justified or based on cultural or regional preferences; disparity is unexplained variation that is not clinically or culturally justified. Further work is needed to examine the extent to which the observed variation in documentation reflects variation in performance and to understand the basis for that variation. Without further study, we cannot know the clinical significance of the observed variation or what the variation indicates.

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CHAPTER 7. VETERANS' PERCEPTIONS AND OUTCOMES OF CARE

The goal of the VA is to "restore the capability of veterans with disabilities to the greatest extent possible and improve the quality of their lives and that of their families" (U.S. Department of Veterans Affairs, 2002). Restoration of capability is defined as achieving the maximum physical, mental, and social functioning possible, given the veteran's disabilities, by delivering care that is respectful of and responsive to individual patient preferences and needs. To evaluate the extent to which this goal was being met, the study team fielded a telephone survey of 6,190 veterans (Hepner et al., 2010, June). We used the data to assess three key contextual measures that speak to veterans' views of the quality of care received through the VHA: timeliness of care, patient-centeredness, and reasons for seeking care from the VHA. We also used the survey data to assess two outcomes: patient satisfaction, a key outcome in the IOM quality framework, and veterans' perceptions of their own improvement and the helpfulness of care.

There are two problems in using veteran survey data to address these outcomes, particularly whether VHA services resulted in improved capabilities. First, the survey was cross-sectional; that is, the assessment of functioning was conducted at a single point in time. Cross-sectional data do not allow comparisons of symptom severity or functioning over time. They also do not permit linking the quality of care veterans received with improved outcomes or tracking veterans' satisfaction across episodes of care. Second, because symptom profiles vary widely across the five diagnostic cohorts (schizophrenia, bipolar I, MDD, PTSD, and SUD), it was not possible to address the specific symptoms of each diagnostic cohort within the time limit of the survey. Although we examined the medical records for FY 2007, functioning and improvement in capabilities are poorly documented in these records. For these reasons, we chose instead to use the data to assess veterans' satisfaction with the care they received, their perceptions of their own improvement, and the helpfulness of care.

Table 7.1 sums up the topics addressed in this chapter. The methods used are described in detail in Chapter 2.

Table 7.1. Veterans' Perceptions of Care and Outcomes

Topic	Domain	Data source
Timeliness	Veterans' perception of care	Veteran survey
Patient-centeredness	Veterans' perception of care	Veteran survey
Reasons for seeking care from the VHA	Veterans' perception of care	Veteran survey
Patient satisfaction	Outcome	Veteran survey
Perceptions of improvement and helpfulness of care	Outcome	Veteran survey
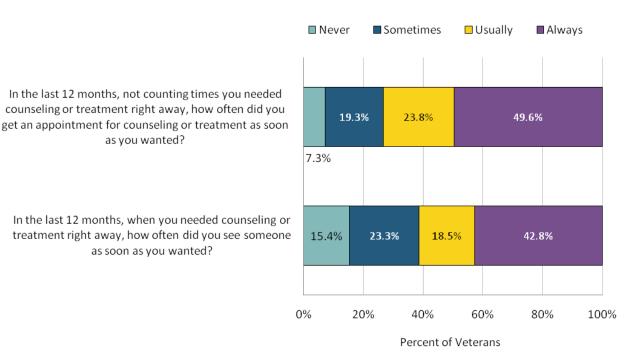
TIMELINESS

Timeliness is an important characteristic of any health care service (Institute of Medicine, 2001, 2005). A timely system prevents patients from experiencing harmful delays in receiving necessary services. "In addition to emotional distress, physical harm may result, for example, from a delay in diagnosis or

treatment that results in preventable complications . . . lack of timeliness also signals a lack of attention to flow and a lack of respect for the patient that are not tolerated in consumer-centered systems in other service industries. It suggests that care has not been designed with the welfare of the patient at the center" (Institute of Medicine, 2001).

The veteran survey asked veterans how often they received counseling or treatment *as soon as they wanted*. They were asked to distinguish between times they needed counseling or treatment *right away* and times they did not. Figure 7.1 shows the distribution of responses for each survey question. Our statistical analyses focused on the percentage of veterans who selected "always" for each item. For routine appointments (excluding the times when the veterans perceived needing counseling or treatment right away), nearly half (49.6 percent) reported "always" getting appointments *as soon as they wanted*. For urgent care (times in which veterans perceived needing counseling or treatment right away), 42.8 percent reported "always" seeing someone *as soon as they wanted*. For both measures of timeliness, there was little variation across VISNs but large variation across age groups. Only VISN 1 performed significantly better than the average VISN for either measure. Older veterans were more likely than younger veterans to report "always" receiving care as soon as they wanted. For example, about one-quarter (26.4 percent) of veterans in the 18–34 age group reported "always" receiving urgent care as soon as they wanted, compared with nearly half (47.2 percent) of veterans in the 55–64 age group.

Figure 7.1. Reported Timeliness of Care, Data Collected November 2008–August 2009

PATIENT-CENTEREDNESS

Patient-centeredness is one of the six aims for high-quality health care endorsed by the IOM (Institute of Medicine, 2001, 2005). The IOM defines patient-centeredness as "providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions" (Institute of Medicine, 2001). Patient-centeredness makes the patient the source of control over health care decisions that affect him or her. Conceptually, it can include any aspect of communication between a patient and any component of the health care system. A similar notion of

patient-centeredness is emphasized in the VHA MHSP, which identifies the consumer and family as the drivers of mental health care. In implementing these aspects of patient-centeredness, the VHA *Handbook on Uniform Mental Health Services* states that "mental health services must be recovery-oriented" and identifies fundamental components, including self-direction, individualized and person-centered care, peer support, respect, responsibility, and hope (Department of Veterans Affairs, 2008a).

In this section, we look at one aspect of patient-centeredness, respect for patients' preferences and expressed needs. The veteran survey included statements about VHA staff and asked veterans to rate their strength of agreement or disagreement. Figure 7.2 shows the distribution of agreement for two items. Our statistical analyses focused on the percentage of veterans who selected "strongly agree" for each item. Overall, 43 percent of veterans reported that they "strongly agree" that staff listened to them and respected their decisions about care, while slightly over one-quarter (26 percent) reported that they "strongly agree" that staff helped them develop and plan for life goals beyond managing symptoms. For both measures, there was little variation across VISNs or veteran characteristics, with the exception of gender. On both items, women were significantly more likely than men to report "strongly agree."
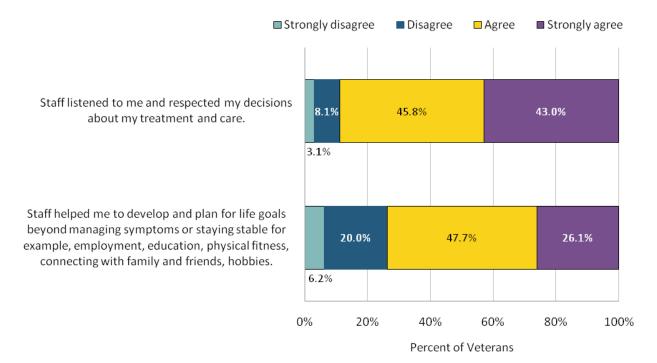
Figure 7.2. Perceived Patient-Centeredness, Data Collected November 2008–August 2009
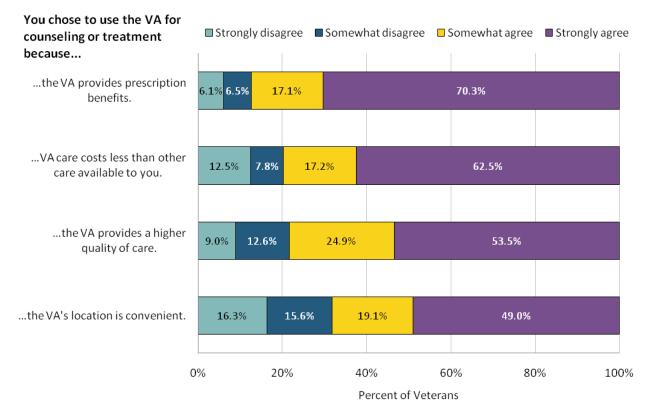
REASONS CITED FOR USING VHA SERVICES

The VHA strives to be the provider of choice for enrolled veterans (Department of Veterans Affairs, 2008b), and thus it is of particular interest to understand the reasons veterans use VHA services and the perceived barriers to service use.

The veteran survey listed four key reasons for using VHA services and asked veterans to rate their strength of agreement or disagreement. Figure 7.3 shows the distribution of agreement for each item. Our analyses focused on the percentage of veterans who selected "strongly agree" for each item. Among study veterans who reported using VHA mental health services in the past year, the availability of prescription benefits was the most frequently cited factor influencing use of VHA services (70 percent), followed by lower costs (63 percent), higher-quality care (54 percent), and convenient location (49 percent). We

observed significant variations by OEF/OIF status in reasons cited for using VHA services. OEF/OIF veterans tended to be less likely than non-OEF/OIF veterans to "strongly agree" that they chose to use VHA services because of prescription benefits (54.1 percent versus 71.5 percent), higher-quality care (28.7 percent versus 55.2 percent), or convenient location (35.3 percent versus 50 percent).

Similarly, younger veterans were significantly less likely than older veterans to endorse these three factors. Given the overlap between younger and OEF/OIF veterans (66 percent of OEF/OIF veterans are under 35 years of age, and 60 percent of veterans under age 35 are OEF/OIF veterans), we examined whether these age-specific patterns held for both groups. We similarly examined whether the OEF/OIF results held for both younger and older veterans. Among non-OEF/OIF veterans, older veterans were significantly more likely to endorse the three factors. Among older veterans, the non-OEF/OIF veterans were significantly more likely to state that the provision of prescription benefits was a reason for their use of VHA services.

Figure 7.3. Reasons Cited for Using VA Services, Data Collected November 2008–August 2009

PATIENT SATISFACTION

Patient satisfaction is an important treatment outcome and an overarching goal of VHA care. Prior studies have shown that more-satisfied patients have better medication adherence (Nagy and Wolfe, 1984) and other patient outcomes (Hoffman et al., 2003), while less-satisfied patients are more likely to switch health care plans (Lied et al., 2003; Newcomer, Preston, and Harrington, 1996) and, among veterans, more likely to receive care outside the VHA (Stroupe et al., 2005). Because satisfaction represents patient perceptions of care and not other patient outcomes, it has been recommended that satisfaction be considered in conjunction with measures of clinical quality and functional status (Norquist, 2009).

In the veteran survey, respondents were asked to provide two ratings: one for their mental health treatment in the past year at the VHA[42] and another for their treatment outside the VHA. Figure 7.4 shows the distribution of veterans' ratings for VHA treatment, where 0 is "the worst counseling or treatment possible" and 10 is "the best counseling or treatment possible."
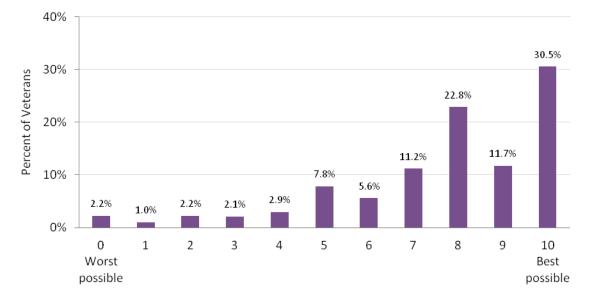
Figure 7.4. Satisfaction with VA Mental Health Care, Data Collected November 2008–August 2009
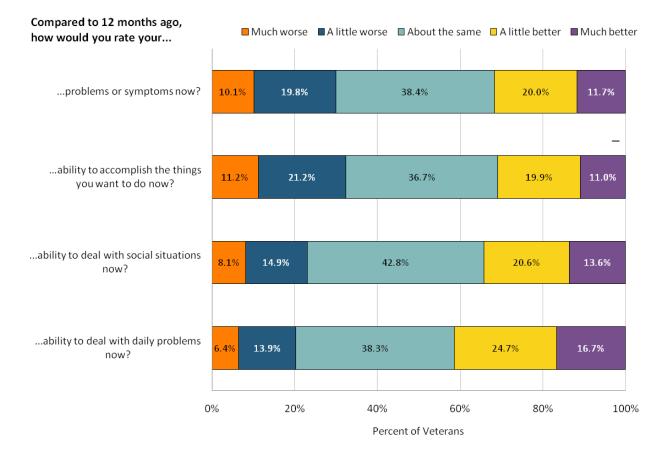
Overall, 42.3 percent of veterans selected a rating of 9 or 10; the average rating was 7.7. Slightly more than one-third (36.7 percent) of veterans who received both VHA and non-VHA care in the past year[43] rated their VHA care higher than their non-VHA care; slightly more than one-third (35.7 percent) rated their non-VHA care higher than their VHA care; and about one-quarter (27.6 percent) rated each the same. The average difference in ratings for VHA and non-VHA treatment was less than one-fifth of a point (0.18).

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[42] Including treatment provided or paid for by the VHA.

[43] Includes 688 veterans (11.1 percent of the survey sample).

VETERANS' PERCEPTIONS OF THEIR OWN IMPROVEMENT AND THE HELPFULNESS OF CARE

Improving veterans' symptoms and their ability to function in society is an overarching goal of VHA care; therefore, improvement in veterans' functioning is an important outcome of VHA care. We evaluated this outcome through the veteran survey, which was administered only once, so it was not possible to track symptom levels or functioning over time. Rather, veterans were prompted to rate their *perceived improvements* over the past year, across various areas of functioning. Figure 7.5 shows the distribution of these ratings across four areas of functioning: problems or symptoms, ability to accomplish things, ability to deal with social situations, and ability to deal with daily problems. In each area, veterans were most likely to report their functioning being "about the same" as it was 12 months ago: 31.7 percent of veterans reported that their problems or symptoms were "a little better" or "much better" than they were with 12 months ago; 30.8 percent reported being "a little better" or "much better" at accomplishing things; 34.3 percent reported being "a little better" or "much better" at dealing with social situations; and 41.4 percent reported being "a little better" or "much better" at dealing with daily problems. For most of these measures, there was significant variation by gender, age, residence, ethnicity, and diagnostic cohort.

Figure 7.5. Perceived Improvement, Data Collected November 2008-August 2009

Figure 7.6 shows how veterans reported the helpfulness of counseling or treatment.
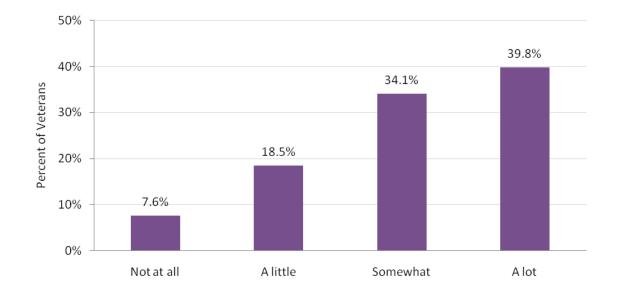
Figure 7.6. Reported Helpfulness of Counseling or Treatment, Data Collected November 2008–August 2009

CONTEXT: THE ECHO FIELD TEST REPORT

Several of the measures in this chapter were derived from survey items included in prior studies. The items regarding timeliness of care, patient satisfaction, and perceived improvement were drawn from the Experience of Care and Health Outcomes (ECHO) survey, an instrument for collecting consumer ratings of behavioral health treatment (Daniels et al., 2004; ECHO Development Team, 2001a; Eisen and Cleary, 2000; Eisen et al., 1999; Eisen et al., 2001). To help contextualize the findings in the present evaluation, we summarize the ECHO Field Test Report below (ECHO Development Team, 2001a). The ECHO field test team administered the ECHO survey at six managed behavioral health care organizations, one university-based student insurance program, and one state Medicaid program. Adult patients were selected on the basis of recent utilization of chemical dependency and mental health care from a specialty behavioral health care provider, such as a psychiatrist, psychologist, social worker, psychiatric nurse, case manager, or rehabilitation counselor. The full sample consisted of 1,236 individuals enrolled in commercial plans and 2,213 individuals enrolled in public assistance plans. The sample was predominantly white (86 percent), female (76 percent), and young—32 percent were between the ages of 35 and 44, and only 3.2 percent were over 65. The majority of the sample (84 percent) was eligible based exclusively on mental health care utilization. While this population differs significantly from the veterans in the present evaluation and therefore does not support direct comparisons, the relevant descriptive findings provide context and are highlighted in Table 7.2.

Table 7.2. Selected Results from the ECHO Field Test Report (2001) and the VHA National Average, Data Collected November 2008–August 2009

Domain	Survey Item (scoring)	Commercial	Public Assistance	VHA National Average
Timeliness	In the last 12 months, when you needed to get counseling or treatment right away, how often did you see someone as soon as you wanted? (% "always")	42.3	38.0	42.8
	In the last 12 months, not counting times you needed counseling or treatment right away, how often did you get an appointment for counseling or treatment as soon as you wanted? (% "always")	42.9	40.0	49.6
Satisfaction	Using any number from 0 to 10, where 0 is the worst counseling or treatment possible and 10 is the best counseling or treatment possible, what number would you use to rate the counseling or treatment you received in the last 12 months? (% "9" or "10")	45.7	43.0	42.3
Perceived improvement	Compared with 12 months ago, how would you rate your ability to deal with daily problems now? (% "a little better" or "much better")	81.1	69.7	41.4
	Compared with 12 months ago, how would you rate your ability to deal with social situations now? (% "a little better" or "much better")	58.9	55.2	34.2
	Compared with 12 months ago, how would you rate your ability to accomplish the things you want to do now? (% "a little better" or "much better")	67.4	58.3	30.9
	In the last 12 months, how much were you helped by the counseling or treatment that you got? (% "somewhat" or "a lot")	87.6	83.8	73.9

While the results in Table 7.2 are not directly comparable to our results, the similarities and differences observed between samples raise questions that may guide future work. In particular, the results for timeliness and satisfaction are quite similar, despite being drawn from different treatment systems and

patient populations. There are larger differences between the samples on the perceived-improvement items. For example, the largest difference between samples is on the item assessing the patient's ability to deal with daily problems, with both the commercial and public assistance samples reporting a higher rate of being better able to deal with them. A similar pattern occurred in the remaining perceived-improvement items, but the difference was not as large. These data cannot address the cause of the differences, which could include a variety of factors, including differences in sample severity and chronicity and differences in quality of care.

LIMITATIONS

Several general limitations apply to the results in this chapter. Many of the measures discussed were derived from survey data and therefore depend on veterans' ability to recall and reflect on their experiences of illness and treatment. Such patient perceptions' are complicated and likely to be influenced by expectations, personal experiences, and a variety of other unobserved factors (Sofaer and Firminger, 2005; Thompson and Sunol, 1995). Valid measures of patient-centeredness are not available. Putting the findings into context by comparing results with those from other systems is limited by the comparability of the target populations and possible differences in the ways persons across various subgroups self-report their experiences. Given that 67 percent of eligible veterans completed the survey, nonresponse bias is also a potential limitation of the study. As detailed in Chapter 2, we conducted an extensive analysis of differences between responders and nonresponders. On most of the characteristics examined, the differences were small in practical significance terms, as was the increase in variance due to adjusting for observed differences between respondents and nonrespondents (2.4 percent). While this is encouraging, it should be noted that nonresponse weighting adjustments account for only the observable characteristics that are included in the nonresponse analysis. The study team mitigated this as much as possible by using a comprehensive set of veteran characteristics to derive nonresponse weights, but it is possible that other unobservable factors could differ between respondents and nonrespondents.

SUMMARY

Using data from the veteran survey, we assessed three key contextual measures that speak to veterans' views of the quality of care received through the VHA: timeliness of care, patient-centeredness, and reasons for seeking care from the VHA. We also used the survey data to assess two outcomes: patient satisfaction and veterans' perceptions of their own improvement and the helpfulness of care. Half of the veterans in this population (50 percent) reported "always" getting routine appointments as soon as they wanted; 43 percent reported that they "strongly agree" staff listened to them and respected their decisions about care; and slightly over one-quarter (26 percent) reported that they "strongly agree" staff helped them develop and plan for life goals beyond managing symptoms. Among study veterans who reported using VHA mental health services in the past year, the availability of prescription benefits was the most frequently endorsed factor influencing use of VHA services (70 percent), followed by lower costs (63 percent), higher quality (54 percent), and convenient location (49 percent).

When rating all of their VA mental health care, 42 percent selected "9" or "10," where 0 was "the worst counseling or treatment possible" and 10 was "the best counseling or treatment possible." Approximately 74 percent of veterans reported being helped "a lot" or "somewhat" by their counseling or treatment received in the prior 12 months. However, only 32 percent perceived that their problems or symptoms as having improved.

One prior study administered similar survey items to a sample of patients with recent utilization of mental health care services at six managed behavioral health care organizations. The patient population was primarily female (76 percent) and young—32 percent were between the ages of 35 and 44, and only 3.2 percent were over 65. In this sample, about 40 percent of respondents reported "always" seeing someone as soon as they wanted when they perceived needing counseling or treatment right away. About 45

percent of respondents selected "9" or "10" for their overall rating of counseling or treatment. Over 70 percent reported being "a little" or "much better" in their ability to deal with daily problems than they were 12 months prior; more than half reported being "a little" or "much better" in their ability to deal with social situations than they were 12 months prior; and more than 60 percent reported being "a little" or "much better" in their ability to accomplish things then they were 12 months prior. Overall, 85 percent reported being helped "somewhat" or "a lot" by their treatment. As described in Chapter 6, veterans who responded to the survey reported similar results for timeliness and satisfaction but were less likely to report perceived improvements in the past year.

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CHAPTER 8. PRIVATE-PLAN COMPARISON

The evaluation presented in this report shows the VHA's performance largely in isolation, measured against its own institutional goals and standards or, in the case of the facility survey, in terms of improvements in providing access to services and EBPs. While contextual information is presented where available, differences in methodology make valid comparisons difficult. In this chapter, we apply the methodology described in Chapter 2 to compare VHA performance on select administrative-data indicators with the same indicators assessed in a large, commercially insured population. We briefly review the methodology for the analysis, present national- and VISN-level results, and discuss the limitations of the analysis.

OVERVIEW OF METHODOLOGY

The "VHA cohort" in this chapter is a subsample of veterans in the FY 2007 study cohort; the "private-plan cohort" consists of a sample of privately insured individuals developed using data from the Thomson-Reuters MarketScan® Commercial Claims and Encounter Database (Adamson, Chang, and Hansen, 2008). The private-plan analysis was conducted in partnership with researchers at the Rutgers University AHRQ-funded Center for Education and Research on Therapeutics (CERT). The MarketScan database is the largest data source for a commercially insured population in the United States. It contains utilization information on privately insured individuals employed by more than 150 large firms and enrolled in more than 100 health plans. The Rutgers University CERT uses its expertise in using longitudinal MarketScan data to understand the quality of mental health care among the privately insured.

Both cohorts include individuals whose FY 2007 utilization records reflected that they had at least one inpatient episode or two outpatient visits in the year and whose records contained at least one of 38 study-relevant diagnosis codes. The MarketScan data do not include individuals over 65 years of age. Therefore, to improve comparability between the two cohorts, we excluded veterans over 65 from the VHA cohort. Because veterans over 65 constitute 16.8 percent of the FY 2007 study cohort, the VHA results in this chapter will differ slightly from those elsewhere in the report. We constructed the private-plan cohort by applying the methodology we used to create the VHA cohort to the MarketScan data. Table 8.1 shows the distribution of age and gender across the two cohorts.

The results presented here are unadjusted for age and gender, and there are obvious demographic differences between the two populations. For example, there are likely to be unmeasured differences in socioeconomic status, health status, work status, and social stability, all of which might influence performance. This is an important area for future research.

Table 8.1. Comparison of VHA and Private-Plan Cohorts, FY 2007

	VHA, FY 2007		MarketScan	
	Number	**Percent**	**Number**	**Percent**
Male	480,946	90.8	145,971	31.9
Female	48,829	9.2	312,153	68.1
18–34	50,359	9.5	118,927	26.0
35–44	57,892	10.9	107,826	23.5
45–54	121,863	23.0	131,909	28.8
55–64	299,661	56.6	99,462	21.7
Total	529,775	100.0	458,124	100.0

In consultation with the VA steering committee, we selected nine performance indicators that could be operationalized using the MarketScan data. Each of these indicators reflects VA Clinical Practice Guidelines and/or are considered industry-standard. We excluded indicators that could not be assessed using private-sector administrative data and those that were specific to the VA, such as MHICM or specialized intensive PTSD Programs. The nine indicators are presented in Table 8.2.

We addressed numerous methodological challenges in implementing these indicators:
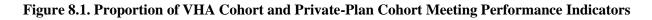
- Medications: VHA pharmacy files include VA-specific drug codes (VA Drug Class Codes). The clinical members of the study team developed a crosswalk to National Drug Codes (NDCs), as found in MarketScan data. Additionally, VA data capture medication use during inpatient stays, while MarketScan data do not. We therefore excluded inpatient medication use for VHA patients in this analysis.

- Laboratory tests: VHA laboratory files include VA-specific lab codes. The study team provided a crosswalk to CPT codes for selected laboratory screening tests.

- Assignment to VISN region: As detailed earlier, veterans were assigned to VISNs based on their documented zip code of residence. While we tried to apply this methodology to the MarketScan data, boundary estimates for the private-plan cohort were less precise because the MarketScan database contains only a three-digit zip code because of privacy concerns. We refer to approximate VISN boundaries as "pseudo-VISNs" throughout this chapter.

Table 8.2. Performance Indicators for Private-Plan Comparison
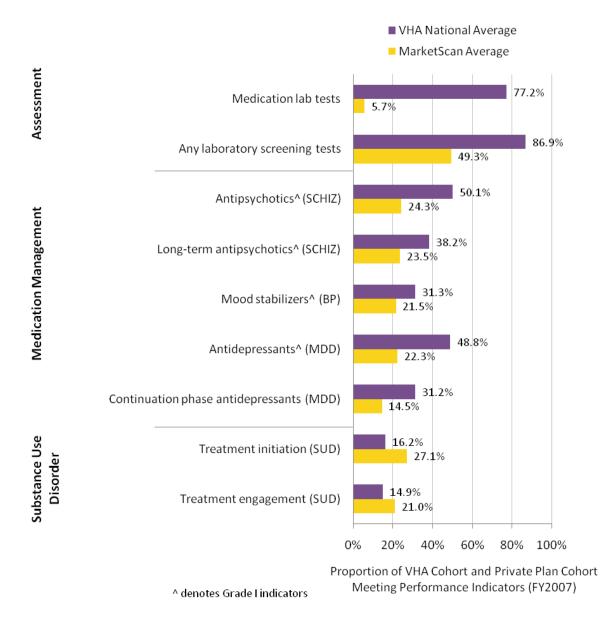
Label	Description
Medication lab tests	Proportion of study veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication who received all recommended blood-level monitoring tests during the study period (Cross-cutting A (a))
Any laboratory screening tests	Proportion of study veterans with evidence of any of the following laboratory screening tests during the study period: thyroid-stimulating hormone, liver function test, chemistry panel, sodium, creatinine, potassium (Cross-cutting L (a))
Antipsychotics (SCHIZ)	Proportion of veterans in the schizophrenia cohort who filled prescriptions for a 12-week supply of an antipsychotic medication in the 12 weeks following the start of an NTE (Schizophrenia A (a))
Long-term antipsychotics (SCHIZ)	Proportion of veterans in the schizophrenia cohort with 12 months of an antipsychotic medication during the study period (Schizophrenia B (a))
Mood stabilizers (BP)	Proportion of veterans in the bipolar-disorder cohort with 12 months of any mood-stabilizing medication during the study period (Bipolar disorder C (a))
Antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 12-week supply of an antidepressant in the 12 weeks following the start of an NTE (Major depressive disorder A (a))
Continuation-phase antidepressants (MDD)	Proportion of veterans in the MDD cohort who filled prescriptions for a 180-day supply of an antidepressant in the 180 days following the start of an NTE (Major depressive disorder B (1))
Treatment initiation (SUD)	Proportion of veterans in the SUD cohort who initiated treatment within 14 days of the start of an NTE with any provider (SUD A (a))
Treatment engagement (SUD)	Proportion of veterans in the SUD cohort with two or more diagnosis-related outpatient encounters in the 30 days following the start of an NTE for AOD (SUD C (a))

RESULTS

Figure 8.1 summarizes the VHA national average and MarketScan average for each indicator.

Figure 8.1. Proportion of VHA Cohort and Private-Plan Cohort Meeting Performance Indicators

The difference between VHA and private-plan performance was statistically significant for all nine measures. Average VHA performance was superior for all of the assessment and medication-management indicators and was lower than private-plan performance for the two SUD indicators. Where average VHA performance exceeded private-plan performance, it frequently did so by large margins: The rate at which the medication lab tests indicator was met within the VHA (77.2 percent) was more than 13 times the rate observed in the private-plan data (5.7 percent). Across the seven indicators for which average VHA

performance was better than private-plan performance, VHA performance was superior by more than 30 percent in every case. VHA performance was particularly strong on indicators involving medication management and laboratory testing, perhaps reflecting the VA's pharmacy benefit program provided to patients and the collocation of laboratory, clinical, and pharmacy services. Performance on the SUD indicators within the VHA may lag private-plan performance because of the significantly higher prevalence of SUD in the VA cohort (57.0 percent) than in the privately insured population (19.1 percent). This could mean that individuals in the VHA SUD cohort are less sick than individuals in the private plan, perhaps because the VHA screening process identifies a large proportion of individuals with SUDs, and also because systematic screening for substance use typically does not happen in the private sector. It is also possible that many veterans are identified in the administrative data as having an SUD when, in fact, their substance abuse is in remission. There are probably other differences in socioeconomic status, health status, working status, and social stability, all of which might influence performance. These performance comparisons indicate that additional research comparing VHA to private-plan performance on other SUD-focused measures is warranted.

Figure 8.2 shows indicator results for each VHA VISN and private-plan pseudo-VISN.
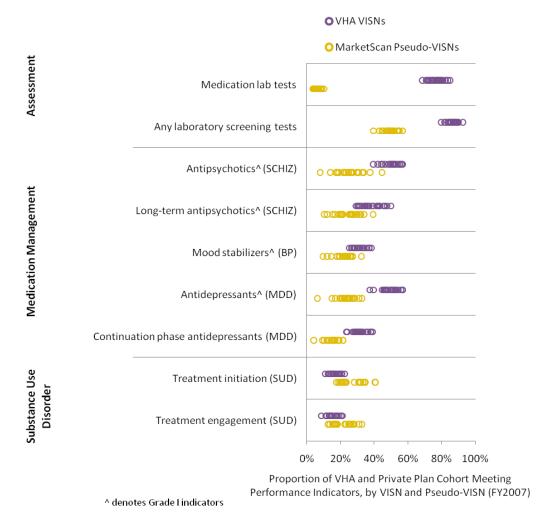
Figure 8.2. VHA Cohort and Private-Plan Cohort Meeting Performance Indicators

^ denotes Grade I indicators

Each purple circle represents VHA performance in one VISN on the indicator; each yellow circle represents private-plan performance in a pseudo-VISN for the indicator. Except in the SUD indicators, the VHA consistently outperformed private plans in each pseudo-VISN. There was also less variability across geographic areas in the VHA than in the private plans for all indicators except medication lab tests. Across all nine indicators, the largest difference between any two VISNs was 20.1 percentage points (long-term antipsychotics), while the largest difference between any two pseudo-VISNs was 36.7 percentage points (antipsychotics).

The lower variability observed across the VHA's networks may reflect a number of important systemic differences. Because the VHA represents a single health care system, in contrast to the large number of other health systems represented in the MarketScan data, it has the advantage of a unified organizational structure, a single set of clinical practice guidelines, and policies and procedures that likely contribute to reducing variation across VISNs.

LIMITATIONS

Several limitations apply to these results. First, the number of indicators compared is relatively small. As a result, our ability to generalize these findings to the care delivered for these conditions more broadly is

limited. Second, there may be systematic and unobserved differences between the two populations which we could not control for. For example, veterans are more likely to have lower socioeconomic status and be disproportionately represented in the homeless population (The Urban Institute et al., 1999). We also lacked measures of chronicity and severity of condition. This may influence our results, because individuals with greater impairment have more difficulty seeking care and complying with treatment regimens. Other unmeasured differences that were likely to be present are work status and social stability.

The direction of this potential bias is unclear. It is possible that privately insured individuals have less-severe conditions. The actual plan holder is typically employed, indicating that he or she is functional. This does not necessarily apply to dependents, however, who are also insured through the employed individual. Alternatively, it is possible that the privately insured individuals identified for this analysis could have more-severe conditions. The stigma associated with a mental health or SUD diagnosis may make many providers reluctant to record a mental health diagnosis on medical claims. Providers may record a mental health diagnosis only for individuals with the most severe mental illness. In addition, because of its screening activities, the VHA may be more likely than private plans to identify less-severe mental health or substance-use disorders. Diagnostic coding practices of the VA and private providers may also differ.

In addition, the observed poor private-plan performance on rates of medication use and laboratory tests could indicate missing data. Medication data may be missing because individuals are paying out-of-pocket for their medications. Data about specific laboratory tests may be missing if the laboratory or physician (when testing is performed in the office) receives bundled or capitated payments on a per-episode or per-patient basis, which does not encourage the filing of claims for individual tests.

Finally, the privately insured individuals do not have uniform coverage and benefit levels. The MarketScan data represent a wide variety of types of health plans, including fee-for-service, fully capitated, and partially capitated arrangements covering the spectrum of preferred provider organizations, point-of-service plans, indemnity plans, and health maintenance organizations. Because we used aggregated data in these analyses, we do not have information on the generosity of coverage provided by different plans. Because the contributors to the MarketScan databases tend to be large employers, it is likely that the health care coverage they provide is more comprehensive than that received by the privately insured population in general.

Despite these limitations, the findings presented here are consistent with prior reports that VA performance consistently exceeds that of non-VA comparison groups for process-based quality measures (Trivedi et al., 2010).

SUMMARY

Comparison of VHA performance on nine selected administrative-data indicators with the same indicators assessed in a large, commercially insured population indicates that the performance difference is statistically significant for all nine measures. Average VHA performance was found to be superior for all of the assessment and medication-management indicators and lower than private-plan performance for the two SUD indicators. Where average VHA performance exceeded private-plan performance, it frequently did so by large margins: The rate at which the medication lab tests indicator was met within the VHA (77.2 percent) was more than 13 times the rate observed in the private-plan data (5.7 percent). Across the seven indicators for which average VHA performance was better than private-plan performance, VHA performance was superior by more than 30 percent in every case.

Performance on the SUD indicators within the VHA may lag private-plan performance because of the significantly higher prevalence of SUD in the VHA cohort (57.0 percent) than in the privately insured population (19.1 percent). This could mean that individuals in the VHA SUD cohort are less sick than those in the private plan, perhaps because the VHA screening process identifies a large proportion of

individuals with SUD, and systematic screening for substance use typically does not happen in the private sector. It is also possible that many veterans are identified in the administrative data as having an SUD when, in fact, their substance abuse is in remission. There may also be important unmeasured differences between the two populations in socioeconomic, health, and work status, as well as social stability,

There was also less variability across geographic areas in the VHA cohort than in the private-plan cohort for all indicators except medication lab tests. Across all nine indicators, the largest difference between any two VISNs was 20.1 percentage points (long-term antipsychotics), while the largest difference between any two pseudo-VISNs was 36.7 percentage points (antipsychotics). The lower variability observed across the VHA's networks may reflect a number of important systemic differences. Because the VHA is a single health care system, in contrast to the large number of other health systems represented in the MarketScan data, it has the advantage of a unified organizational structure, a single set of clinical practice guidelines, and policies and procedures that likely contribute to reducing variation across VISNs.

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This capstone report summarizes a four-year evaluation of mental health services provided by the VA for veterans with schizophrenia, bipolar disorder, PTSD, major depression, and SUD. The evaluation was commissioned by the VA under the authority of the Government Performance and Results Act and conducted by a team of scientists from the Altarum Institute and RAND. This summary presents findings from five reports produced by the study: the *Phase 1 report* used facility survey data to describe the availability of VA mental health services in 2007; the *administrative data report* defined the study cohort and assessed performance indicators; the *veteran survey report* described veterans' perceptions of and outcomes from care; the *facility survey report* used a second wave of facility survey data to describe the change in VA mental health services between 2007 and 2009; and the *medical record review report* assessed additional performance indicators (Pincus et al., 2008, May; Sorbero et al., 2010, June; Watkins et al., 2010, October; Woodroffe et al., 2010, October).

This chapter presents eight statements, each of which captures an overall conclusion of the analysis. It also reviews key challenges in conducting the evaluation, highlights key findings, identifies areas for further research, and recommends strategies for improving mental health and substance abuse care in the VA.

1. The VA requested the most extensive, comprehensive, and detailed assessment of the quality of mental health care ever conducted, but the current state of quality assessment in mental health is still limited by many of the barriers identified in the 2006 IOM report.

Overview of the Evaluation

The evaluation examined VA mental health and SUD care delivered to veterans in five diagnostic categories (schizophrenia, bipolar disorder, MDD, PTSD, and SUD) between FY 2004 and FY 2008. The evaluation took place during the implementation of the VA's MHSP, a large five-year initiative to expand and improve mental health care for veterans. The MHSP was approved by the Secretary of the Department of Veterans Affairs in November 2004. In FY 2005, the VA allocated about $88 million to MHSP initiatives, including more than $5 million for substance abuse services, nearly $10 million for CWT, and a combined $18 million for PTSD services and OEF/OIF care. In FY 2006, the VA allocated an additional $158 million to MHSP initiatives, including $4 million for MHICM teams, $6 million for psychosocial and recovery-oriented services, a combined $10 million for telemental health programs and web-based support tools, $17 million for CBOC mental health services, $17 million for substance abuse services, a combined $19 million for PTSD services and OEF/OIF care, and $65 million to continue initiatives funded in the previous year (United States Government Accountability Office, 2006). The present evaluation began in 2004 and was, in part, designed to assess changes in the context of MHSP implementation. We drew on four distinct data sources: surveys of VA medical facilities, administrative data, medical record data, and a veteran survey. We collected data on 139 PFSAs, analyzed data on nearly 1.5 million individual veterans, reviewed 7,069 medical records for a subset of these veterans, and surveyed 6,190 veterans about their experiences and outcomes. We assessed VA quality of care across the six IOM domains, using more than 80 performance indicators.

In the breadth of its scope, as well as its approach to overcoming barriers to assessing mental health care quality, the study is intended to serve as a model for evaluating other systems of mental health and substance use care.

Barriers to Evaluation in Mental Health Care

In designing and conducting this evaluation, we faced many of the barriers to quality assessment identified in the 2006 IOM report on the quality of mental and substance use health care. Some of these barriers apply to all mental health care evaluations, while others are specific to the data sources available for evaluating VA mental health care.

Significant gaps in the evidence base underlying treatment practices commonly used in mental health represent a major barrier. Empirical data on the effectiveness of many practices that have high face validity do not exist. For example, most clinicians would agree that patients need a mental status examination at the time of initial evaluation. However, no studies have assessed the predictive validity of conducting this assessment—that is, the extent to which conducting a mental status exam is associated with improvements in outcomes. There is also variation in the specific procedures that constitute a mental status exam. In addition, many commonly used practices, such as responding appropriately to someone who is suicidal, cannot be validated using randomized clinical trial study designs, because it would not be ethical to withhold appropriate care for suicidality. Observational study designs may be used to assess relationships, but it can be more difficult to minimize biases with these designs.

The 2006 IOM report also documented the underdevelopment of the infrastructure for measuring and reporting quality (Herbstman and Pincus, 2009; Institute of Medicine, 2006; Kilbourne, 2006). Key deficits are the lack of standardization and classification of clinical assessment and treatment practices for use in administrative datasets; insufficient attention paid to the development and dissemination of mental health performance measures; and the infrequent use of outcome measurement in routine clinical practice. Moreover, the overall effort has been hindered by the absence of a group overseeing and coordinating the process (Herbstman and Pincus, 2009). The review also found that significant gaps exist in measure development and that serious weaknesses in data systems diminish the usability of the findings for purposes of quality reporting.

Our evaluation also addressed barriers that were related specifically to the limitations of each kind of data available for evaluating VA mental health care:

1. The evaluation relies on *administrative data,* specifically the VA-unique inpatient and outpatient utilization datasets, and the linked pharmacy, laboratory, and cost data sets that are maintained separately. Claims-based administrative data, which are often utilized for quality assessment in the private sector, are generally not as comprehensive. VA administrative data provide more breadth (number of variables captured) and depth (degree to which variables are populated) than other datasets focused on reimbursement, but some data elements may be missing or inaccurate (e.g., the race/ethnicity variables cannot be relied upon). Not all VA clinicians make recording key data elements for administrative records a top priority, and facilities may vary in the extent to which processes are in place to encourage and standardize this activity. Furthermore, there may be facility-level variability in coding practices, such as different stop codes being used for the same service. Information that is not systematically recorded cannot be tracked, and information that is inconsistently coded could make variability appear greater than it actually is. Furthermore, while, in some instances, the data that are recorded have been verified via specific studies, for the most part, the contents of the administrative sets have not been compared with other sources of the same data (i.e., medical records) for mental health and SUD. A VA-wide program to ensure data accuracy and uniformity could remove these sources of variability and would result in an information resource that could be used for quality-improvement efforts that extend beyond the performance indicators the VA has used successfully to date. Finally, administrative data capture only services that were actually provided and medications for which prescriptions were filled. They do not capture occurrences of a service or medication being recommended

by a provider but refused by the patient, or of the normally recommended treatment or medication for a condition being contraindicated.

2. *Medical record data* address some of the limitations of administrative data, but they have their own disadvantages. Care may be provided but not documented, or documented but not provided. Thus, data from the medical record reflect the quality of documentation and cannot be used to conclusively evaluate quality of care.

3. *Facility and veteran survey data* also have inherent limitations. They are subject to social desirability bias—that is, responders may be influenced by a desire to provide information they feel is socially acceptable to the questioner, regardless of its accuracy. In addition, the validity of the findings depends on the survey respondents' answering the questions accurately, truthfully, and in an unbiased fashion. Even in instances in which responders intend to answer truthfully, they may genuinely lack the necessary information. Data obtained from the veteran survey are subject to recall bias, and veterans may not remember important details of care that occurred several months previously.

A further limitation was our inability to assess the quality of VA-paid care that was not delivered by the VA or care that was provided in the VA's Readjustment Counseling Centers, informally known as Vet Centers. Although some utilization data were available for these categories, they were insufficient to assess performance. Vet Centers are administered through a separate component of the VA and were not included in this evaluation.

Against this background, the scope of work for this evaluation presented a remarkably ambitious agenda for conducting what we believe to be the largest and most comprehensive systematic assessment of a mental health care system ever undertaken. It required breaking new ground, adapting existing indicators derived from multiple sources, and developing a large number of new indicators, assessing them for appropriateness and feasibility, and applying them throughout the VA system. Through initiating this evaluation, the VA has opened new opportunities for understanding, measuring, and improving the quality of mental health and substance use care for veterans and eventually for all individuals needing such care as these new strategies are further refined and applied more broadly.

2. The population of veterans with schizophrenia, bipolar disorder, PTSD, MDD, and SUD comprises a large and growing number of veterans with severe and complex general medical, mental, and substance-use disorders and accounts for a disproportionately large proportion of utilization and costs for the VA.

A substantial number of veterans in our study cohort had complex medical, mental, and substance-use disorders. Specifically:

- 50 percent of the veterans in the FY 2008 study cohort had at least one medical comorbidity, 23 percent had co-occurring SUD, and 53 percent had a mental health diagnosis other than their cohort-qualifying diagnosis.

- Veterans in this population have substantially lower mental and physical health functioning than the general adult U.S. population, and this is true across VISNs.

- This group accounts for a disproportionately large share of VA utilization and costs. Despite being only 16.5 percent of the VA patient population, study-cohort veterans accounted for 40.9 percent of acute inpatient discharges, 39.9 percent of outpatient encounters, and 34.4 percent of total costs (about $12 billion of $36 billion in total annual spending). Costs were also disproportionately spread across study veterans; the most costly 36 percent of them were responsible for 80 percent of the total inpatient costs of study veterans (acute + residential + extended care). The majority of utilization and costs were for non-mental health conditions.

- The study veterans had an average of 11.9 mental health outpatient encounters and 22.8 non–mental health outpatient encounters, as well as 0.14 mental health inpatient episodes and 0.21 non–mental health inpatient episodes. Overall, 41 percent of the FY 2008 study veterans made at least one outpatient psychotherapy visit during the study period, almost three-quarters (71 percent) made at least one group or individual outpatient visit that was not medication-related, and about the same proportion (72 percent) received at least one 30-day prescription of psychopharmacotherapy[44] for a mental health disorder.

3. Across the country, VA facilities report substantial capacity for treating the serious-mental-illness population, and although VA capacity has increased since the implementation of the MHSP, important gaps remain.

Our evaluation measured VA capacity in terms of the reported availability of basic and specialized services, of infrastructure to support the delivery of good care, of information technology (IT) capabilities, of EBPs at VAMCs and CBOCs, and of personnel to deliver care. The reported availability of most VA services increased between 2007 and 2009. However, some gaps and variation across PFSAs and VISNs remain.

Availability of Basic and Specialized Services

Basic services (psychotherapy and pharmacotherapy) and specialized services (treatment for PTSD and SUD) were reported to be available at almost all VAMCs (96 to 99 percent, depending on the service) and at the majority of CBOCs (64 to 88 percent) during clinic hours, but reported after-hours availability was lower at both VAMCs (65 to 81 percent) and CBOCs (9 to 14 percent). However, we found a positive trend in the reported after-hours availability of these services at both VAMCs and CBOCs, where after-hours service availability roughly doubled between 2007 and 2009.

We also examined the use of telemedicine to make services more broadly available. We found that reported availability of telemental health services (including by telephone) was low (less than 25 percent of PFSAs for the majority of services about which we asked), and there was significant variation in the use of telemedicine across PFSAs. While some variation might be appropriate given the variation in VISN size and population, telemedicine appears to be an underutilized resource. The relatively low usage rates for certain EBPs suggest that some PFSAs may not be using this technology to assist in expanding access to care for veterans who have difficulty reaching VA facilities.

Infrastructure to Support the Delivery of High-Quality Care

Similar to the 2007 survey findings, the 2009 survey results illustrate significant variation within VISNs in reported structural supports, suggesting that national- or VISN-level policies in these areas either did not exist for many EBPs or were not known by PFSA administrators at the time of the 2009 survey. In particular, there were unused opportunities to share Chronic Care Model strategies across VISNs and PFSAs. For example, each of four self-management support services we asked about was reported to be utilized in less than two-thirds of PFSAs. Specifically, 15 percent of PFSAs reported offering interactive instruction given by a computer—the same percentage that reported offering it in 2007. Self-management support services help veterans and their families to handle self-care tasks while ensuring that effective medical, preventive, and health-maintenance interventions take place.

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[44] At least one 30-day prescription for alcohol deterrents, anticonvulsants, antidepressants, antipsychotics, lithium salts, or Prazosin.

Information Technology

We observed that the VA has a highly developed IT infrastructure, but it could push ahead further in applying it to quality and outcomes monitoring. In particular, only 35 percent of PFSAs reported the ability to create and use a clinical registry to help clinicians monitor and track patients over time—that is, a tool that individual clinicians and administrators can access in real time, without IT assistance, and which can be used to monitor a specific group of patients. This could be particularly important in terms of long-term medication management for bipolar disorder and schizophrenia, because clinicians would be able to identify patients who were at risk of non-adherence and clinical relapse. We found, for example, that most veterans in the schizophrenia and bipolar-disorder cohorts (50 percent in each cohort) were in intermittent treatment with medication (antipsychotics for schizophrenia and mood stabilizers for bipolar disorder) during FY 2007; a clinical registry that would allow clinicians to identify which patients had missed appointments or not filled prescriptions could substantially increase adherence and decrease the risk of relapse. Clinical registries can also be used by clinicians for preventive care—for example, to identify patients who may be due for an annual examination or annual flu shot. IT was more widely used for other kinds of monitoring—for example, monitoring of provider-level practices was reported in 83 percent of PFSAs, program-level outcomes in 88 percent, and patient-level outcomes in 80 percent. The use of this information within VISNs and PFSAs for planning and management was reported in only about one-third of PFSAs; however, 2009 data suggested that the use of this technology is increasing.

Evidence-Based Practices

We asked facilities about the availability of 12 specific EBPs. Eleven of them were reportedly available in at least 75 percent of the facilities, and the remaining EBP, electroconvulsive therapy, is expected to be offered in all VISNs but not in all PFSAs. It is worth noting that 11 of the 12 practices (all except intensive outpatient treatment for SUD) were reported to be available at more PFSAs in 2009 than in 2007. Opiate agonist therapy, in particular, showed an increase in reported availability from 45 percent of PFSAs in 2007 to 81 percent of PFSAs in 2009. Greater expansion of EBPs may be worth considering in the 14 percent of PFSAs that report offering eight or fewer practices. However, documented use of EBPs was low despite extensive reported availability. For example, while 88 percent of PFSAs reported offering supported employment in May 2007, only 2 percent of veterans with schizophrenia, bipolar disorder, or MDD with psychosis used supported employment during FY 2007. Similarly, 81 percent of PFSAs reported offering family psychoeducation in May 2007, but fewer than 2 percent of veterans in the schizophrenia or bipolar-disorder cohorts used any family psychoeducation in the year.

The variation in reported availability of EBPs by geography in 2007 had largely disappeared by 2009, except for a few notable exceptions (opiate agonist therapy, MHICM, integrated dual-disorder therapy, and family psychoeducation).

Personnel

In general, PFSAs reported fewer recruitment difficulties in 2009 than in 2007, but some positions remained difficult to fill. Reported turnover was highest for psychiatrists and vocational-rehabilitation staff in 2009, as was the case in 2007; and turnover increased for psychiatrists, social workers, and vocational-rehabilitation staff and decreased for all other position types. We observed one area of notable improvement in staffing capacity: In 2009, more than 95 percent of PFSAs reported having a suicide coordinator, staff training in suicide prevention, and policies for flagging and tracking veterans who express suicidal thoughts.

Compared with rates of board certification for all U.S. self-identified psychiatrists (including VA physicians) in 2006 (62 percent) and in 2008 (64 percent), survey results indicate that the VA exceeds the

national average as rates of board certification for VA psychiatrists were 79 percent and 75 percent in May 2007 and October 2009, respectively.

4. Overall, the assessment of quality indicators suggests that in most instances the performance of VA care is as good as or better than that reported by other groups or shown by direct comparisons with other systems of care, but the level of performance often does not meet implicit VA expectations.

After assessing the structure of VA care, we examined processes of care. As we discuss in Chapter 5, an issue germane to the measurement of processes of care is the lack of agreed-upon thresholds or benchmarks. When is care "good enough" (Sox and Greenfield, 2010)? While a health care system might aim to meet every performance indicator in all instances, is there an acceptable level of care, where *acceptable* is defined as an adherence rate that exceeds a predetermined threshold in a population of clinical practices? While the implicit presumption may be that for many indicators, adherence would approach 100 percent, this does not fully account for patient preferences, individual needs, and contraindications. Furthermore, benchmark values may not necessarily be appropriate across different systems of care and often need to change over time as practices evolve. A more useful concept may be that of an "achievable" benchmark (Kiefe et al., 2001), or one that is defined in relation to the current functioning of the system. For example, an achievable benchmark might be the rate obtained by the best-performing VISN for a particular indicator.

Because well-established benchmarks do not exist for the indicators in this report or in the field more broadly, we refrain from commenting on whether our results are good or bad, and instead present the numbers as they are, with the expectation that this will generate discussion about developing explicit performance expectations. To assist with this discussion and provide a context for our results, we provide additional information from the literature, where available, about the performance of other systems of care (e.g., private health plans, Medicaid).

We reached two overarching conclusions about the quality of the processes of care:

- The performance of VA care is as good as or better than that reported in the literature by other groups or shown by the direct comparisons conducted in our study.

- However, the level of performance on quality indicators often did not meet the implicit expectations specified in the VA performance guidelines; in particular, documented delivery of EBPs is infrequent, even when they are reported to be available.

We summarize key results in more detail below.

Our comparison between VA performance and that of private providers serving a civilian population with the same disorders (Chapter 8) found that the VA had higher levels of performance than private plans for seven out of nine indicators. VA performance exceeded private-plan performance by large margins in many cases. For example, veterans in the VA were more than 12 times more likely to satisfy the medication lab tests indicator than the private-plan population (77.2 percent versus 5.7 percent). Across the seven indicators for which average VA performance was better than that of the private plans, VA performance was superior by more than 30 percentage points in every case. VA performance was particularly strong on indicators involving medication management and laboratory testing, perhaps reflecting the VA's pharmacy benefit program provided to patients and the collocation of laboratory, clinical, and pharmacy services.

The only indicators for which VA performance was inferior to private-plan performance were the two SUD indicators (treatment assessment and treatment initiation). There was significantly higher prevalence of SUD in our cohort (57.0 percent) than in the privately insured population (19.1 percent), which could mean that individuals in the VA SUD cohort are less sick than those in the private plans, perhaps because

the VA screening process identifies a large proportion of individuals with SUDs, and also because systematic screening for substance use typically does not happen in the private sector. These performance comparisons indicate that additional research comparing VA to private plans on other SUD-focused measures is warranted.

On a key quality indicator, timeliness of mental health care, the VA performed somewhat better than behavioral-health-service users in commercial (43 percent) and public plans (40 percent) (Shaul et al., 2001a). A total of 50 percent of veterans in the study population reported "always" getting routine appointments as soon as they wanted. Among those hospitalized for a psychiatric condition, about half (47.7 percent) received an outpatient follow-up within 7 days of their discharge, and more than three-quarters (78.2 percent) received follow-up within 30 days. Among users of commercial plans, 57.2 percent received follow-up within 7 days, and 76.1 percent received follow up within 30 days; among those using Medicare[45] providers, 38.1 percent received follow up after 7 days, and 56.5 percent received follow-up after 30 days. There was a 23-percentage-point difference between the highest- and lowest-scoring VISNs, with VISN 23 performing even better than the private plans (60.7 percent) and VISN 6 having rates comparable to those of Medicare (37.7 percent).

Access to EBPs

Although our analysis of structure indicated that EBPs are reported to be widely available, we did not find that they are being widely delivered to veterans, according to medical record and administrative data. For example, although 40 percent of the veterans in our study cohort received psychotherapy, most did not include elements of an evidence-based modality. Among veterans receiving psychotherapy, there was low use of CBT (20 percent for those in the PTSD cohort, and 31 percent for the MDD cohort). We observed similarly low rates of relapse-prevention therapy (22 percent) and contingency management (1 percent) for SUD, and low rates of social-skills training (16 percent) for those with schizophrenia. While we do not know the proportion of individuals who might have benefited from access to these EBPs, the low rates suggest that the VA could do more to increase access.

Pharmacotherapy

Among veterans in an NTE, about half of those in the schizophrenia cohort (48 percent) received a 12-week supply of antipsychotics within 12 weeks, and about half of those in the bipolar-disorder cohort (55 percent) received a 12-week supply of mood stabilizers within 12 weeks. We observed similar results for MDD treatment. About half (49 percent) of those in the MDD cohort in an NTE received a 12-week supply of antidepressants within 12 weeks, and about one-third (31 percent) received a 180-day supply within 180 days. We also found that 60 percent of veterans in the MDD cohort with at least one filled prescription for an antidepressant received a 12-week supply within 12 weeks. This is comparable to the 62.9 percent rate observed for commercial plans and better than the 42.8 percent rate for Medicaid populations. Less than one-third of veterans in the bipolar-disorder and schizophrenia cohorts received continuous treatment with mood stabilizers and antipsychotic medication bipolar disorder. This is important, because patients who discontinue these medications have a much higher rate of relapse (Kane, 2006), even with short medication gaps. Several medications are effective for alcohol dependence: 16.4 percent of veterans with alcohol dependence had documentation in the medical record of being offered pharmacotherapy (naltrexone, Antabuse (disulfiram), or acamprosate) or that it was contraindicated within 30 days of an NTE. The VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders states that "addiction-focused pharmacotherapy should be considered, available and offered if

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[45] The comparison data were collected and audited by the NCQA, which applies a slightly different indicator specification than the one we used in the present evaluation. See Chapter 6 for a full description of the differences.

indicated, for all patients with opioid dependence and/or alcohol dependence" (The Management of Substance Use Disorders Working Group, 2009).

Follow-Up Assessment

Assessing response to treatment, including side effects and adherence, is a critical component of acute treatment, as patients who are not responding or who have poor adherence may need to have their treatment regimen changed (e.g., different medications or dosing, or added psychiatric medications for those receiving only psychotherapy). Among these follow-up assessment indicators, performance was highest for medication blood-level monitoring (77 percent of veterans with one or more filled prescriptions for lithium, valproic acid, carbamazepine, or any antipsychotic medication) and assessments of side effects from medications (73 percent of veterans in the schizophrenia cohort who were taking antipsychotic medication). However, performance on indicators related to assessments of response to treatment was lower. Less than one-third (30 percent) of study veterans had documentation that their symptoms were reassessed between two and four months following the start of an NTE. These findings also apply to the effects of specific treatments. Less than one-quarter (23 percent) of veterans in the MDD cohort who were receiving psychotherapy had documentation of an assessment of response to psychotherapy, and 55 percent of those receiving at least one prescription for psychiatric medications had documentation of assessment of response. We do not know whether there was simply a failure to document or a failure to assess. In the context of clinical teams delivering care, however, failure to document results of an assessment is a quality problem.

Psychosocial Services

Fewer than 30 percent of veterans who needed employment or housing assistance reported receiving any assistance from the VA. Veterans may self-report low rates of receiving VA assistance in part because practitioners may not have assessed the level of need. Medical record data on veterans in an NTE suggest that less than two-thirds have a documented assessment of their housing and employment needs (60 percent and 62 percent, respectively). Many more veterans with a documented need were offered housing services (81 percent) than were offered employment services (28 percent). According to estimates from the veteran survey, there are approximately 54,000 veterans nationwide (10.5 percent) who may need employment assistance and approximately 70,000 (13.7 percent) who may need housing assistance. It is important to note that the VA does not have sole responsibility for addressing employment and housing needs. However, the veteran survey asked veterans about services "from the VA," and consequently these findings reflect their perceptions of housing and employment services irrespective of the VA's specific responsibilities and eligibility requirements.

5. Our analyses revealed variation in many of the performance indicators assessed with regard to specific populations, services, and locations.

Our evaluation found variations in many of the performance indicators across several dimensions assessed with regard to specific services. There were variations by personal characteristics (age, gender, and OEF/OIF status), diagnostic cohort, and geography (VISN and urban/rural status).

We observed variations in performance over every characteristic we examined, differences of as much as 25 percentage points across some subgroups of veterans. It is important to note that we performed bivariate analyses, which require further examination using multivariable analysis to understand what factors might explain significant bivariate variations. However, we confirmed that the results presented in

this subsection also hold when controlling for other veteran characteristics, except where noted.[46] Identifying these variations represents an opportunity for the VA to further investigate the sources of these differences in performance and potentially develop additional strategies for quality improvement. Across all diagnostic cohorts, we observed lower utilization of appropriate services by veterans over the age of 65 and, to a lesser extent, those under 35, OEF/OIF veterans, and veterans residing in rural areas. While we observed statistically significant variation across VISNs on individual indicators, few VISNs stood out as consistently performing above or below the VISN average.

Indicators with the largest observed variation included the following:

By VISN

- Housing and employment assessment rates varied by more than 25 percentage points across VISNs, from 58 percent in VISN 10 to 32 percent in VISN 18.

- MHICM utilization rates varied by more than 20 percentage points across VISNs, from 35 percent in VISN 8 to 14 percent in VISN 1.

- The proportion of veterans in the MDD cohort who filled a 12-week supply of antidepressants within 12 weeks of an NTE varied by 19 percentage points across VISNs, from 57 percent in VISN 15 to 38 percent in VISN 5.

- The 23-percentage-point difference in follow-up after inpatient hospitalization between VISN 23 (60.7 percent) and VISN 6 (37.7 percent) is one of the largest VISN-level differences observed.

- For continuation-phase antipsychotic medication among veterans in the schizophrenia cohort, the percentage difference between the highest- and lowest-performing VISNs was almost 20 percentage points. Seven VISNs (1, 10, 11, 15, 19, 20, and 23) had 12-month-supply fill rates that significantly exceeded the VISN average; an equal number of VISNs (3, 5, 7, 8, 16, 18, and 22[47]) had 12-month-supply fill rates significantly lower than the VISN average.

- For continuation-phase mood-stabilizer use among veterans in the bipolar I cohort, the difference between the highest- and lowest-performing VISN was 12.1 percentage points. Seven VISNs (1, 6, 11, 15, 19, 20, and 23) have proportions that were significantly higher than the average VISN; an equal number of VISNs (3, 5, 8, 12, 16, 18, and 21) reported proportions significantly lower than average.[48]

By age

- Percentages for treatment follow-up for the SUD cohort were highest for veterans in the 35–44 age group (37 percent) and lowest for those 65 and older (11 percent).

- Veterans 65 and older had the lowest percentage of treatment initiation for the SUD cohort (6 percent). Veterans in the 35–44 age group had the highest rate, which was about four times higher (23 percent).

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[46] For performance indicators from the administrative and medical record reports, results were adjusted for gender, age, co-occurring disorders, marital status, urban/rural location, and service-connectedness. Measures from the veteran survey were adjusted for characteristics described in Chapter 2.

[47] VISN 22 was not significantly different from the average VISN in continuation-phase antipsychotic medication use among veterans in the schizophrenia cohort when veteran characteristics were controlled for.

[48] VISN 6 and VISN 12 were not significantly different from the average VISN in continuation-phase mood-stabilizer use among veterans in the bipolar-disorder cohort when veteran characteristics were controlled for.

- The percentage of antipsychotic-prescription fills among veterans in the schizophrenia diagnostic cohort 65 and older (35 percent) was 19 percentage points lower than the percentage noted among veterans 18–34 years of age (54 percent).

- Across age groups, older veterans were more likely than younger veterans to report "always" receiving care as soon as they wanted it. About one-quarter (26.4 percent) of veterans in the 18–34 age group reported "always" receiving urgent care as soon as they wanted it, compared with nearly half (47.2 percent) of veterans in the 55–64 age group.

By urban/rural residence

- Urban residents experienced better care in housing and employment assessment (a 14.5-percentage-point difference), MHICM (an 11.6-percentage-point difference), and treatment follow-up for SUD (a 9.2-percentage-point difference). However, the difference between urban and rural veterans was not significant when veteran characteristics were controlled for; in particular, older veterans were significantly more likely to be assessed than younger veterans.

6. Most performance indicators did not show substantial improvement from FY 2004 through FY 2007, but there was recent evidence of structural enhancements and increased availability of services that may yield improvements in the future, as well as significant annual change in the number of veterans in the study cohorts who were served during the study period.

There were few substantial improvements in performance indicators over the FY 2004–FY 2007 period. We included nine performance indicators in our time-trends analysis, and while most showed improving performance over the period, only two increased by more than 3 percentage points The proportion of veterans who received all recommended side effect tests for mood-stabilizer or antipsychotic medications increased by 7 percentage points, and the supported-employment programs grew from serving fewer than 200 veterans in nine VISNs in the first half of FY 2005 to serving more than 3,500 across all 21 VISNs by the second half of FY 2007. Further, 88 percent of PFSAs reported offering supported employment by May 2007, increasing to 94 percent in October 2009. This growth likely reflects the nearly $10 million that the VA allocated to more than 20 sites for compensated work therapy and supported-employment programs in FY 2005. Despite the increasing workload volumes observed, documented use remained low, with only 2 percent of veterans in the schizophrenia or bipolar-disorder cohorts or with psychosis using supported employment in FY 2007.

Although most performance indicators did not show substantial improvement over the study period, the number of veterans who received services increased. For example, despite declining performance in the proportion of veterans to receive psychotherapy between FY 2004 and FY 2007 (–2.1 percentage points), 67,156 more study veterans received psychotherapy in FY 2007 than in FY 2004. This trend held for nearly all performance indicators, including the receipt of outpatient psychological or psychotherapeutic treatment, follow-up laboratory tests, and outpatient follow-up after an acute inpatient psychiatric discharge. This growing capacity parallels the significant growth (a cumulative 38.5 percent) in the number of study veterans included over the four-year study period.

As discussed above, the facility survey also showed growing capacity, much of which was likely driven by MHSP initiatives. For example, the reduction of suicide among veterans is a key goal of MHSP implementation, which requires the appointment of a suicide-prevention coordinator with a full-time commitment to suicide prevention activities. In May 2007, 44 percent of PFSAs reported having policies for flagging veterans who express suicidal thoughts, and 29 percent had policies for proactively tracking them. These proportions increased to nearly 100 percent by October 2009. Similarly, the process of hiring suicide-prevention coordinators was just beginning in May 2007, when only 5 percent of PFSAs reported

having any on staff. As of October 2009, nearly all VAMCs (99 percent) reported having suicide-prevention coordinators on staff. Finally, between May 2007 and October 2009, the number of facilities reporting suicide-prevention training for mental health clinic staff increased nearly twofold for mental health (55 percent versus 96 percent). While such expanding capacity is necessary to support the growing population of veterans with the five disorders included in this study, it does not necessarily imply expanding service use. For example, while facility survey data showed that over 80 percent of PFSAs offered supported employment and family psychoeducation in May 2007, fewer than 2 percent of applicable veterans had documented use of the services in FY 2007. We observed a similar pattern of broad availability but low documented use for other EBPs as well, including MHICM and family psychoeducation.

Implementation of EBPs is challenging in many health care systems. Providing training, while an important first step, does not ensure that an EBP will reach the patients who need it and does not ensure that the EBP will be delivered with fidelity. Implementing EBPs requires an explicit implementation plan and ongoing supervision efforts. Even when trained reasonably well, clinicians may incorporate only selected elements of the practice into their own treatment orientation and style (Fixsen et al., 2005).

7. Overall, veterans' perceptions of VA services were favorable, although they did not perceive significant improvement in their conditions.

We assessed three key contextual measures that speak to veterans' views of the quality of care received through the VA: timeliness of care, patient-centeredness, and reasons for seeking care from the VA. We also assessed two outcomes: patient satisfaction, a key outcome in the IOM quality framework, and veterans' perceptions of their own improvement and the helpfulness of care.

Timeliness

Half of the veterans in the study population (50 percent) reported "always" getting routine appointments as soon as they wanted them. This is somewhat better than the rates of behavioral-health-service users in commercial (43 percent) and public plans (40 percent) (ECHO Development Team et al., 2001). For urgent care (occasions when they perceived needing counseling or treatment right away), 42.8 percent of veterans reported "always" seeing someone as soon as they wanted to.

Patient-Centeredness

Overall, 43 percent of veterans reported that they "strongly agree" that staff listened to them and respected their decisions about care, while slightly more than one-quarter (26 percent) reported that they "strongly agree" that staff helped them develop and plan for life goals beyond managing symptoms.

Reasons for Seeking Care

Among study veterans who reported using VA mental health services in the prior year, the availability of prescription benefits was the most frequently endorsed factor influencing use of VA services (70 percent), followed by lower costs (63 percent), higher quality (54 percent), and convenient location (49 percent).

Patient Satisfaction

A total of 42 percent of veterans selected "9" or "10" when rating all of their VA mental health care, where 0 was "the worst counseling or treatment possible" and 10 was "the best counseling or treatment possible." These results are similar to those reported by behavioral-health-services users in earlier studies of commercial (46 percent) and public plans (43 percent) (ECHO Development Team et al., 2001).

Helpfulness of Treatment

Approximately three-quarters (74 percent) of veterans reported being helped "a lot" or "somewhat" by counseling or treatment received in the prior 12 months. However, only 32 percent perceived their problems or symptoms as having improved.

8. The evaluation revealed substantial opportunities for further investigation, specific problem areas and strategies for improving performance, and methods to enhance capacity for quality monitoring and improvement.

Despite the comprehensiveness of our evaluation, a great deal more remains to be learned about mental health care in the VA. Some priority areas suggested by our results are described below.

Recommendations for Further Investigation

What is the basis for variations in care that we observed? To what extent are they a function of poor documentation rather than performance? To what extent are they caused by clinical needs? What can be learned from high-performing or low-performing sites? While we observed variations in care, we do not know the basis for them. Variations do not necessarily indicate disparities: Variations may be clinically justified or based on cultural or regional preferences, whereas disparity is unexplained variation that is not clinically or culturally justified. Further work is needed to examine the extent to which observed variation is due to variation in documentation practices or reflects true variation in performance, and to understand the basis for the variation. Further work is also needed to understand which variations are significant when taking into account demographic differences among VISNs. Finally, work is needed to understand factors that might moderate variation. Expanding research on this is an important next step.

What are the relationships among structure, process, and outcomes as they are implemented and measured in the VA system? Knowing the relationships between structure, process, and outcome would help the VA identify the types of structural changes/program implementation strategies that are most likely to result in the successful implementation of specific EBPs. There may be some processes of care that have higher relative effectiveness, and identifying these could increase efficiency. Other issues include the relationship between receiving a particular EBP and veterans' perceptions of VA mental health care, satisfaction, and perceived symptom improvement.

What are the costs associated with quality improvement? How is high quality achieved in the most cost-efficient manner? Understanding the costs associated with implementing specific facility-level quality-improvement strategies and the cost-quality tradeoffs could help the VA prioritize quality-improvement interventions. Knowledge of which practices are associated with the greatest increases in quality (outcomes) per unit cost could help the VA become more efficient,

What is the predictive validity of the performance indicators? What composite measures should be developed and tested? Practice guidelines and policy statements represent expert consensus, after systematic review of relevant literature, on how a disorder should be diagnosed and treated, and performance measures are typically based on guidelines. While each guideline recommendation and policy statement references the appropriate evidence base, it is important to validate resulting quality measures in terms of their ability to predict patient outcomes under real-world conditions. This would involve conducting prospective studies of cohorts of veterans in which links between process and outcomes could be rigorously assessed. Results would be valuable to mental health providers both within and outside of the VA.

Specific Problem Areas and Strategies for Improving Performance

In addition to identifying areas for further investigation, our evaluation highlighted specific areas of performance where the VA could target quality-improvement initiatives and suggested strategies for improvement.

Problem: Low documented use of EBPs. Although results from the facility survey indicate that EBPs are reported to be almost universally available, we did not find documentation indicating that they are being widely delivered to veterans. We do not know whether this reflects poor documentation or actual low rates of use.

Strategy: We recommend that the VA undertake the following actions:

- Develop and use templates to capture the critical components of EBPs and, where such templates exist, make programming the template by the Office of Information and Technology a priority. For example, the VA has developed templates for psychotherapy progress notes, but they require computer programming by the Office of Information and Technology before they can be implemented.

- Develop and disseminate national implementation standards for program-level EBPs (e.g., family psychoeducation, integrated dual-disorders treatment) and for veteran-level EBPs (e.g., frequency-of-medication evaluation and management sessions, relapse-prevention therapy). EBPs, such as supported employment, MHICM, and CBT, for which the Office of Mental Health Services has disseminated national policies and standards, appear to be implemented with more adherence to implementation standards than practices for which detailed national policies and fidelity standards are unavailable, e.g., family psychoeducation. Specifying what is expected when a particular EBP is delivered is an important first step in ensuring treatment fidelity and effectiveness.

- Use results from the extensive research conducted by VA implementation-science researchers on provider behavior change, incentives, and implementation planning to address the gaps identified by the evaluation. The VA is unique in that it has a number of health-services research and development programs, as well as quality-improvement programs. Better communication between VA researchers and VA clinical services could help make use of VA expertise in this area.

- Consider expanding the use of telemedicine, as well as evaluating the cost-effectiveness of this technology as a means to expand access for those practices for which efficacy can be established when delivered in other than face-to-face settings.

Problem: Many veterans do not receive consistent pharmacotherapy. While the performance of the VA generally exceeds that of other systems, there is still room for improvement, particularly in acute and maintenance pharmacotherapy. While almost three-fourths of the study cohort received at least one 30-day prescription for psychopharmacology, less than half of those veterans in an NTE received the recommended length of care. Less than one-third of the individuals for whom maintenance pharmacotherapy is recommended were in continuous treatment with medication. These are important and significant gaps in care, which the research literature suggests have a measurable and clinically significant impact on outcomes.

Strategy: We recommend that the VA take the following steps:

- Conduct an environmental study to identify best practices related to chronic-care registries, with a particular focus on mental-health-specific implementation.

- Procure or develop a registry module for the VA's electronic medical records system that minimizes the need for additional data entry and maintains ease of use and high-level tracking of evidence-based care.

- Provide training in, and establish formal expectations for, use of registries in care planning and delivery processes.

- Investigate the basis for low rates of mental health medication-treatment adherence among the veteran population, with an emphasis on contributors and strategies to improve continuity of care.

Clinical registries could also be used to manage and track other recommended processes of care, such as SUD treatment participation or sessions of psychotherapy. In other settings (Kates and Mach, 2007; McEvoy and Laxade, 2008), the use of clinical registries is associated with improved clinical outcomes. Results from our survey of facilities showed some growth in the availability of registries between the two survey waves, but in 2009, just over one-third of facilities (35 percent) reported that they had the ability to systematically "monitor and track the care of all veterans" in the PFSA who have a specific mental health diagnosis. The use of registries is an area with strong potential for significant improvement in continuity of mental health care. Given the degree of comorbidity between mental and substance-use disorders and other chronic medical conditions, it will be important to develop strategies that effectively integrate registries across multiple conditions.

Problem: Inadequate or non-standard assessment of response to treatment. Assessing response to treatment, including side effects and adherence, is a critical component of acute treatment, as patients who are not responding or who have poor adherence may need to have their treatment regimen changed (e.g., different medications or dosing or added psychiatric medications for those receiving only psychotherapy). Moreover, applying so-called measurement-based care strategies, i.e., systematically conducting longitudinal structured assessments and adapting treatments based upon these assessments, represents an important component of chronic-care management (Harding, Rush, Arbuckle, Trivedi, and Pincus, 2010).

Strategy: The VA should invest in research to develop, test, and disseminate standard outcome-monitoring tools. It should consider both symptom- and functioning-based tools, as well as tools that capture both patient and provider perspectives.

Problem: Inadequate assessment and delivery of housing and employment services. Medical record data on veterans in an NTE suggest that less than two-thirds of them have a documented assessment of their housing and employment needs (60 percent and 62 percent, respectively). Many more veterans with a documented need were offered housing services (81 percent) than were offered employment services (28 percent). Based on estimates from the veteran survey, fewer than 30 percent of veterans who needed employment or housing assistance reported receiving any assistance from the VA. This corresponds to approximately 54,000 veterans in this population nationwide (10.5 percent) who may need employment assistance and approximately 70,000 (13.7 percent) who may need housing assistance. Of perhaps even greater importance is the lack of policies that contain sufficient detail to identify which housing and employment problems the VA is responsible for addressing, and which should be addressed by the Veterans Benefits Administration. For example, there is no definition of when to conclude that a veteran's work difficulties are caused by his or her mental illness.

Strategy: Two actions are recommended:

- Develop a standardized documentation template for assessment of psychosocial needs (First, Pincus, and Schoenbaum, 2009). Veterans may self-report low rates of receiving assistance from the VA in part because practitioners may not be systematically assessing the level of need.

- Clarify what constitutes need for housing and employment services. While there is a division of roles between the Office of Mental Health Services and the Veterans Benefits Administration with regard to work and housing, this divisions is insufficiently defined and interpreted.

Enhancing Capacity for Quality Monitoring and Improvement

Problem: Lack of agreement on the importance of and responsibility for different program outcomes and specific performance expectations for these outcomes. Quality improvement as envisioned in the IOM framework relies on benchmarks, objectives, and priorities for measuring and improving quality. However, it is unclear which outcomes have priority in the VA's strategic vision for quality improvement. A specific example of this is the importance of housing and employment as outcomes and their relative importance to the veteran and his family in relation to symptoms, quality of life, and functional status. While one of the VA's program goals is to restore the capability of veterans with disabilities to the greatest extent possible, the VA needs to operationalize this statement by specifying performance expectations.

Strategy: Using a multistakeholder methodology and the MHSP as a guide:

- Establish the relative priority of different program outcomes.

- With expert input, specify achievable outcomes, using a combination of empirical evidence, performance data from comparable systems, and face validity.

Problem: Lack of empirical benchmarks and performance expectations for different process-of-care measures and lack of operationalization for important treatment processes. The VA has been a leader in the development and dissemination of practice guidelines. The next frontier is to specify benchmarks for delivered care and to operationalize specific treatment processes. There are no agreed-upon thresholds to distinguish between levels of performance. Without articulated thresholds, it is not possible to come to definitive judgments about quality or to judge whether performance meets an acceptable standard of care, where *acceptable* is defined as performance that exceeds a predetermined threshold in a population of clinical practices. This is needed work for all of medicine, not just mental health and not just the VA.

Strategy: We recommend that the following efforts be undertaken:

- Similar to the recommended approach for specifying benchmarks for outcomes, use a combination of empirical evidence on current performance, expert opinion, and performance data from comparable systems to set target benchmarks for performance on process-of-care indicators. It is important for initial benchmarks to result in improved care but still be viewed as attainable by providers to encourage buy-in. While the VA's goal may be to offer appropriate services to 100 percent of veterans, it may be more realistic to focus in the short and medium term on achievable goals.

- Define exactly what "counts" as meeting a benchmark. For example, while a large body of research exists on the effectiveness of CBT, the critical elements of CBT have not been identified. Ongoing medication management is important for veterans with bipolar disorder or schizophrenia, but in practice, how many days of medication use does this mean?

Problem: Inadequate capacity to assess and improve treatment fidelity. The VA lacks the ability to document the critical *techniques* of evidence-based psychotherapies, which would allow fidelity assessment through electronic medical record review. Fidelity assessments of EBPs should be routine and conducted by independent evaluators.

Strategy: Develop and apply fidelity tools to capture critical components of EBPs. Ensure that fidelity assessments are done by independent evaluators on all or at least a random selection of MHICM programs. Conduct routine and independent fidelity assessments of a random selection of supported employment and integrated dual-disorders treatment programs and develop and apply tools to assess the implementation of family psychoeducation.

Problem: Lack of standardization in the collection and accessibility of clinical information at key care transitions, where patients move between health care practitioners and settings as their condition and care needs change during the course of a chronic or acute illness, and in the collection of patient inputs into their own care. The patient information available to different clinicians may vary, and different clinicians may see different information about the same patient. Treatment plans are incomplete and difficult to locate; in some cases, they may exist in forms that are not easily recognizable. There are no standardized ways of documenting patient participation in treatment decisions.

Strategy: The following actions should be undertaken:

- Implement standardized, individualized treatment-planning documents that may be linked to problems most often associated with a particular diagnosis, services being offered, and the patient's goals for recovery. The Office of Mental Health Services has recently purchased treatment-planning software; dissemination of this software is an important step in addressing this problem.

- Incorporate the capacity for patients to comment on and document their participation in treatment planning.

- Implement standardized documents/forms for the interactive exchange of information between providers, utilizing pop-up menus.

- Prioritize efforts to make patients' entire medical records accessible through a common portal to allow unfettered access and input by all clinicians caring for them across PFSAs and VISNs in real time. The VA should direct the Office of Information Technology to ensure that clinicians can access patient data, regardless of whether the patient receives care in different PFSAs within the VISN. Some VISNs have an integrated medical record system that allows any provider within the VISN to access at least a portion of the patient's chart in real time; however, other VISNs do not have this capability.

Problem: Inadequacies in the collection of health-service-related information. There are no stop codes for detoxification treatment, integrated dual-diagnosis treatment, or specific types of psychosocial intervention, and stop codes for supported-employment services inadequately reflect service rendered.

Strategy: Develop stop codes to denote the specific services, such as

- Detoxification treatment, integrated dual-disorders treatment, or specific types of psychosocial interventions.

- For multistep services such as referral, assessment, and acute and post-acute treatment, all steps need to have modifiers or specific codes to distinguish between steps.

- For services that correspond to the active treatment component of an EBP, the stop code should be specific to the disorder(s) for which the treatment is empirically supported (e.g., for patients receiving MHICM who do not have schizophrenia, bipolar disorder, or severe MDD, alternative stop codes should be used). We concur with the Office of the Inspector General's recommendation to "evaluate the potential benefits, costs and/or unintended consequences of implementing new or refining existing administrative data sources to improve tracking of services relevant to management of VA" (Department of Veterans

Affairs Office of Inspector General Healthcare Inspection, 2010). The goal should be to eliminate the need to ask for self-reports on program activities.

CONCLUDING OBSERVATIONS

Veterans with one or more of the five mental health diagnoses examined in this study represent a vulnerable and costly population. The VA has substantial capacity to deliver mental health and substance use treatment to veterans with these conditions, and it outperformed the private sector on most quality indicators, which most likely demonstrates the significant advantages that accrue from an organized, nationwide system of care. Nonetheless, the VA is falling short of its own implicit expectations. Over the period evaluated, most performance indicators did not show substantial improvement; however, the evidence of structural enhancements and increased availability of services may yield improvements in the future. In addition, there was significant growth (a cumulative 38.5 percent) in the number of veterans for whom services were provided over the study period. This suggests that while we did not observe substantial improvement in performance over the period on most indicators, maintaining the performance level that *was* achieved concomitant with the underlying growth and change in the population served is a significant accomplishment.

It is important to remember the scope of our work. The VA requested, and we conducted, an extensive and systematic description of the quality of VA mental health services. The Statement of Work did not include a request to determine the factors that might contribute to performance, and this is a critical area for further research. Other areas for further research include investigating the relationships among structure, process, and outcomes and the relative effectiveness of different high-quality processes of care. For the analyses presented in Chapter 6 on variations of care, we did not attempt to tease apart the underlying causal mechanisms or draw conclusions about whether disparities are present. The variations in care provided to different subgroups of veterans may be clinically justified or based on cultural or regional preferences, or they may be disparities, not clinically or culturally justified. Thus, it is essential that future research include developing a better understanding of the basis for observed differences before concluding that variations are disparities. An issue germane to this report relates to the lack of agreed-upon thresholds to distinguish between levels of performance. Without articulated thresholds, it is not possible to judge whether the VA is meeting performance expectations. This is a critical area for further work. Finally, we believe that the tools and strategies for quality measurement developed as part of this project represent a model for evaluation of mental health services that can be adapted for use in other settings and systems.

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APPENDIX A. VA MENTAL HEALTH PROGRAM EVALUATION VISNs

VISN[49]	VISN Name
1	New England Health Care System
2	VA Health Care Network Upstate New York
3	VA New York/New Jersey Health Care System
4	VA Stars and Stripes Health Care Network
5	VA Capitol Health Care Network
6	Mid-Atlantic Health Care Network
7	VA Southeast Network
8	Florida/Puerto Rico Sunshine Health Care Network
9	VA Mid-South Health Care Network
10	VA Health Care System of Ohio
11	Veterans in Partnership Network
12	VA Great Lakes Health Care Network
15	VA Heartland Network
16	South Central VA Health Care Network
17	VA Heart of Texas Health Care Network
18	VA Southwest Health Care Network
19	VA Rocky Mountain Network
20	VA Northwest Network
21	VA Sierra Pacific Network
22	VA Desert Pacific Health Care Network
23	VA Midwest Health Care Network

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[49] Originally, there were 22 VISNs; VISNs 13 and 14 were integrated in 2002 and renumbered as VISN 23.

APPENDIX B. PERFORMANCE INDICATORS[50]

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
Suicide 1	Percentage of patient charts that document assessment for suicide ideation (SI)	Patients from the denominator with a documented assessment for current suicide ideation (SI) at least once during the study period	All patients	Grade III	Effectiveness Safety
Cross-cutting 3	Assessment of recent substance use – type, quantity, and frequency	Patients in the denominator who have an assessment of recent substance abuse, including type, quantity, and frequency, within the first 30 days of the NTE	Patients in a NTE	Grade III	Effectiveness Patient-centeredness
Psychosocial 2	Patients with an NTE in specialty care receive baseline assessment of psychosocial needs or deficits (Axis IV) across the following domains: • Housing • Social supports • Employment	Patients from the denominator who receive a baseline assessment of the presence or absence of psychosocial needs or deficits (Axis IV) across the following domains within one month of the start of the NTE: • Housing • Social supports • Employment status (work or other meaningful daily activity)	All patients with an NTE	Grade III	Effectiveness Timeliness Patient-centeredness Efficiency
Cross-cutting 4	Physical exam	Number of patients who receive a physical exam by a qualified provider 1. Within 30 days of the start of the NTE 2. In the study period	1. All patients with an NTE 2. All patients	Grade III	Effectiveness Patient-centeredness

[50] Listed in the order in which they appear in the tables of Chapter 5.

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
PTSD 1	Assess PTSD symptoms with a standardized measure/instrument	Patients in the denominator who have an assessment of PTSD symptoms within the first 30 days of an NTE	1. PTSD patients with an NTE 2. PTSD patients with an NTE that begins in specialty mental health care	Grade III	Effectiveness Patient-centeredness
Cross-cutting 7	Reassessment of symptoms between the beginning of the second month and the end of the fourth month	All patients for whom symptoms were reassessed between the second and fourth month after the start of the NTE	Patients in an NTE	Grade III	Effectiveness Patient-centeredness
MDD 6	Assessment of degree of response/remission, side effects, and adherence/compliance of medication	Patients from the denominator for which there is documentation describing assessment of degree of response/remission, side effects of medication, and adherence/compliance to medication in the period two to four months following the start of the NTE	Patients with MDD in an NTE on medication	Grade III	Effectiveness Timeliness Efficiency
MDD 7	Documentation that the follow-up visit between the second and fourth month includes assessment of response	Patients from the denominator with a licensed mental health provider at which MDD is the primary or secondary diagnosis and during which there was assessment and documentation of response to outpatient group and/or individual MDD psychotherapy in the period two to four months following the start of the NTE	Patients with MDD in an NTE who are in psychotherapy	Grade III	Effectiveness Timeliness Safety

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
Schizophrenia 2	Annual assessment of weight/BMI, glycemic control, lipids	All patients from the denominator with an assessment during the study period of: 1. Weight or BMI 2. Glycemic control 3. Lipids 4. All of the above 5. At least one of 1, 2, or 3	This indicator will be evaluated for the following populations: 1. Patients with schizophrenia diagnosis 2. Patients with schizophrenia diagnosis who are taking antipsychotic medication	Grade III	Timeliness Safety
Cross-cutting A	Proportions of selected patients from all cohorts routinely monitored for side effects of treatment with mood-stabilizer or antipsychotic medications	Patients from the denominator who have undergone the following testing during the study period: • Lithium thyroid and renal function, serum blood testing • Valproic acid blood count, liver and serum blood testing • Carbamazepine blood count, liver and serum blood testing • Any antipsychotic medications, glycemic control, lipids	Individuals within patient cohorts with one or more filled prescriptions in at least three out of four quarters during the study period, for the following medications (the same medication in each quarter): 1. Lithium 2. Valproic acid 3. Carbamazepine 4. Any antipsychotic medications	Grade III	Safety
Schizophrenia A	Proportion of selected schizophrenia patients with appropriate short term utilization of antipsychotic medications	Patients prescribed an antipsychotic for 12 weeks following the start of an NTE	All patients with schizophrenia in an NTE	Grade III	Effectiveness
Bipolar B	Proportion of selected bipolar disorder patients treated with mood-stabilizer medications	Patients prescribed a mood stabilizer for 12 weeks following the start of an NTE	All patients with bipolar disorder in an NTE	Grade I	Effectiveness

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
PTSD 6	Proportion of patients with PTSD diagnosis who receive an adequate trial of SSRIs	Patients in the denominator who receive a trial of SSRIs for ≥ 60 days or have a documented reason for discontinuing SSRI treatment in < 60 days of the start of the SSRI trial (patient refusal, discontinued for medical reasons, not an appropriate candidate)	Patients with PTSD with a NTE who are in: • Specialty mental health care and who are not receiving psychotherapy • Any type of care and who are not receiving psychotherapy • Any care	Grade I	Effectiveness Timeliness Efficiency
MDD A	Proportion of selected MDD patients receiving appropriate short-term antidepressant-medication therapy	Those patients in the denominator prescribed an antidepressant for 12 weeks following the start of an NTE	Patients diagnosed with MDD in an NTE	Grade III	Effectiveness
MDD A HEDIS	Proportion of selected MDD patients receiving appropriate short-term antidepressant-medication therapy	1. Those patients in the denominator with prescriptions filled for an antidepressant for 12 weeks following the start of an NTE 2. Those patients in the denominator with prescriptions filled for an antidepressant for less than 12 weeks following the start of an NTE 3. Those patients with no filled prescription for an antidepressant during the 12 weeks following the start of an NTE	Veterans in the MDD diagnostic cohort in an NTE	Grade III	Effectiveness
MDD B	Effective continuation-phase pharmacologic treatment for MDD (AMM)	Those patients in the denominator prescribed an antidepressant for 180 days following the start of an NTE	Patients diagnosed with MDD in an NTE	Grade I	Effectiveness

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
Cross-cutting H	Proportion of patients using MHICM	Patients in the denominator using MHICM	Patients in all cohorts	Grade III	Effectiveness
Cross-cutting J	Supported-employment utilization	1. Patients in the denominator enrolled in supported employment during the study period 2. Among those enrolled in supported employment, number of supported-employment visits	1. All patients in the study cohorts 2. Patients in the bipolar and schizophrenia cohorts *or* any patient with two or more visits during the study period with a diagnosis of psychosis	Grade I (BP, SZ) Grade III (SUD) PTSD, MDD	Effectiveness
Cross-cutting K	Family psychoeducation	Those patients included in the denominator who have participated in one or more family psychoeducation encounters	Patients with schizophrenia or bipolar disorder diagnosis	Grade I	Effectiveness
Schizophrenia 3	EBP: social-skills training	All patients receiving during the study period: • Any social-skills training visits, and • How many social-skills training visits	Patients with schizophrenia diagnosis receiving any psychosocial rehabilitation during the study period	Grade I	Effectiveness
PTSD 4	Cognitive CBT for PTSD	Patients in the denominator who receive: 1. Any CBT visits (including behavioral therapy and cognitive therapy) in the study period, and 2. The number of CBT visits received in the year after the first CBT visit from the same CBT provider	Patients with PTSD diagnosis who are receiving psychotherapy	Grade I	Effectiveness
MDD 5	Proportion of patients with MDD diagnosis that received CBT	Patients from the denominator: 1. Receiving any CBT visits (including behavioral therapy and cognitive therapy) in the study period 2. The number of CBT visits received	Patients with MDD diagnosis who are receiving any psychotherapy	Grade I	Effectiveness

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
SUD 8	Proportion of patients with SUD diagnosis that received evidence-based cognitive behavioral RPT by the first provider of RPT	Patients from the denominator who received: 1. Any evidence-based cognitive behavioral RPT in the study period 2. The number of RPT visits received in the year following the first RPT encounter by the same provider	Patients with SUD diagnosis who have at least one psychotherapy visit in the study period	Grade I	Effectiveness
SUD 5	Maintenance pharmacotherapy for opiate dependence at empirically based dosages (a) offered, (b) filled, (c) refused medication, or (d) contraindicated	Patients from the denominator who were: 1. Offered Methadone or a prescription for buprenorphine at the empirically based dose but did not fill it within 30 days on or after the start of the NTE, or 2. Offered Methadone or a prescription for buprenorphine at the empirically based dose and filled it within 30 days on or after the start of the NTE, or 3. Offered Methadone or a prescription for buprenorphine at the empirically based dose but refused medication within 30 days on or after the start of the NTE, or 4. Found to have documentation that a prescription is contraindicated within 30 days on or after start of the NTE, or 5. Found to have no documentation of offer or refusal and no record of a prescription being filled	Patients with SUD diagnosis with opiate dependence with an NTE	Grade I	Effectiveness Safety

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
SUD 9	Proportion of patients with SUD diagnosis who received evidence-based CM or contingency contracting	Patients from the denominator who received: 1. Any evidence-based CM or contingency contracting in the study period 2. The number of CM or contingency contracting visits received in the study period by the same provider	Patients with SUD diagnosis who have at least one psychotherapy visit in the study period	Grade I	Effectiveness
SUD A	Proportion of selected SUD patients with appropriate initiation of treatment for alcohol and other drug dependence	Those patients in the denominator with appropriate treatment initiation	SUD patients with an NTE for SUD, where the initiation of the NTE is with any provider	Grade III	Effectiveness Timeliness
SUD C	Proportion of selected SUD patients who engage in timely treatment for AOD	Those members in the denominator who within 30 days of the start of an NTE have engaged with SUD treatment	All patients with an SUD diagnosis in an NTE	Grade III	Effectiveness Timeliness
SUD B	For selected SUD patients, mean time to initiation of appropriate follow-up SUD treatment	For those in the denominator, patients with any follow-up in the 90 days following the start of the NTE	Patients with an SUD diagnosis in an NTE	Grade III	Effectiveness Timeliness

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
SUD 4	Pharmacotherapy for alcohol dependence (a) offered, (b) filled, (c) refused, or (d) contraindicated	Patients from the denominator who were: 1. Offered a prescription for naltrexone, Antabuse (disulfiram), or acamprosate but did not fill it within 30 days on or after the start of the NTE, or 2. Offered a prescription and filled it within 30 days of the start of the NTE, or 3. Offered a prescription for naltrexone, Antabuse (disulfiram), or acamprosate but refused medication within 30 days on or after the start of the NTE, or 4. Found to have documentation that a prescription is contraindicated within 30 days on or after start of the NTE, or 5. Found to have no documentation of offer or refusal and no record of a prescription being filled	Patients with: 1. Alcohol dependence with an NTE 2. Alcohol dependence in an NTE and a comorbid mental health diagnosis (MDD, BD, SZ, PTSD)	Grade I	Effectiveness Safety

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
SUD 3	Conduct brief intervention at initial visits for patients with alcohol abuse or dependence	Numerator for denominator 1: Proportion of patients that have medical records documenting 1. Provider advice to drink less/abstain from alcohol and feedback about risks of alcohol use to health condition or to general health during the study period, or 2. Completed referral to specialty mental health during the study period, or 3. Already in specialty care, or 4. All other patients Numerator for denominator 2: Proportion of patients that have medical records documenting 1. Within 30 days of the NTE, provider advice to drink less/abstain from alcohol and feedback about risks of alcohol use to health condition or to general health, or 2. Within 30 days of the NTE; completed referral to specialty mental health, or 3. Started the NTE in specialty care, or 4. All other patients	Evaluated for the following populations: 1. All SUD patients with alcohol abuse or dependence within the study period 2. All SUD patients with alcohol abuse or dependence in an NTE	Grade I	Effectiveness

Indicator	Indicator Statement	Numerator	Denominator	Evidence Strength	IOM Domains
COD 2	All patients diagnosed with COD who are in an NTE for COD should receive appropriate treatment for both their SUD and mental health disorder	Patients from the denominator who had 1. Any visits within three months of the start of the co-occurring disorder NTE, or 2. Two visits every month for the first three months following the start of the co-occurring disorder NTE that • Addressed SUD • Addressed mental illness by a qualified provider • Addressed *both* • Addressed *neither*	Patients with an NTE for a co-occurring disorder	Grade I	Effectiveness

APPENDIX C. NONRESPONSE ANALYSIS AND WEIGHTING ADJUSTMENT

This appendix provides an overview of veteran characteristics associated with nonresponse to the client survey and an explanation of how nonresponse weights were estimated to adjust for potential observed biases caused by nonrespondents. The probability sampling and nonresponse weights were multiplied to create an analysis weight that we used to account for both nonresponse and differential sampling probabilities. Full details are given in the veteran survey report (Hepner et al., 2010, June).

NONRESPONSE WEIGHTS

We created nonresponse weights to adjust for potential nonresponse bias associated with observed characteristics that describe the client survey sample. The final weight used in veteran survey data analyses is the product of the sampling weight and the nonresponse weight for a given respondent to the client survey. The nonresponse weight was calculated for the 9,299 eligible (i.e., non-deceased) veterans.

We examined a wide array of administrative-data measures that were available for both client survey respondents and nonrespondents to determine whether they differed in important, observable ways. The first set of measures were veteran-level characteristics—age, income, driving time to the nearest VA facility offering mental health services, mental health diagnostic cohort, co-occurring disorder indicator, indicator of combat veteran eligibility to receive VHA care for up to five years (formerly two years) after leaving a combat zone, homeless indicator from the outpatient Medical SAS file,[51] gender, marital status, Hispanic ethnicity, race, and period of military service. The study team also included a measure of service-connectedness from administrative data that flagged veterans who were receiving disability compensation from the Veterans Benefits Administration for any mental or physical health condition that was related to their military service.

The second set of characteristics employed for the nonresponse weight derivation includes administrative-data-based performance indicators that describe the process of care provided to all veterans in our target sample in FY 2007 (Sorbero et al., 2010, June). These indicators provide a unique opportunity to protect against any nonresponse bias associated with the receipt of appropriate care from the VHA as measured by these indicators. The indicators available for all veterans include whether the veteran received any outpatient psychosocial visits or any outpatient psychotherapy in the outpatient setting, used MHICM, enrolled in a supported-employment program, had any family psychoeducation encounters, or had any laboratory screening tests for thyroid-stimulating hormone, liver function, blood chemistry panel, hepatitis, or HIV.[52]

Bivariate chi-squared tests were conducted to test whether veteran-level characteristics or the selected performance indicators were statistically significantly different for respondents and nonrespondents. Results for analyses of the entire targeted sample are presented in Table C.1.

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[51] This indicator is nonvalidated and possibly quite insensitive.

[52] This indicator was later revised via feedback from the VA Steering Committee to exclude hepatitis and HIV.

Table C.1. Descriptive Statistics and Bivariate Tests of Veteran-Level Measures for Respondents and Nonrespondents, for 9,299 Veterans Eligible to Complete the Survey During November 2008–August 2009

	Respondents	Nonrespondents
N	6,190	3,109
Age (%)*		
Under 35	4.78	5.73
35 to <50	16.87	18.37
50 to <65	60.06	54.97
65+	18.29	20.94
Income (%)*		
Under $10,000	32.49	34.87
$10,000 to < $20,000	26.17	25.99
$20,000+	41.34	39.14
Driving time to closest VA facility offering mental health services (%) *		
Less than 15 minutes	44.86	50.37
15–30 minutes	28.29	27.57
More than 30 minutes	26.85	22.06
Diagnostic cohort (%) *		
Bipolar	22.00	22.10
MDD	23.00	17.82
PTSD	24.25	17.66
SUD Only	11.92	15.41
Schizophrenia	18.82	27.02
Hispanic ethnicity (%) *		
Hispanic	3.65	5.76
Non-Hispanic	78.32	75.72
Missing	18.03	18.53
Race (%)*		
White	59.22	55.45
Black or African-American	16.72	19.88
Other	2.15	1.99
Missing, declined to answer, unknown	21.91	22.68
Marital status (%)*		
Married	40.39	31.49
Never married/single/widowed[a]	28.50	36.25
Divorced	31.11	32.26
Period of service (%)*		
World War II, Pre-Korean, Korean, Post-Korean	10.48	13.73

	Respondents	**Nonrespondents**
Vietnam era	54.47	48.99
Post-Vietnam era	20.45	22.42
Desert Storm	13.28	13.19
Other and 11 missing cases	1.31	1.67
Variables from administrative data (%)		
Received any outpatient *psychosocial visits* during study period (%)*	80.13	77.87
Received any outpatient *psychotherapy* during study period (%)	44.46	42.49
Used MHICM during study period (%)**	2.96	4.18
Enrolled in supported employment during study period (%)	1.31	1.09
Had one or more *family psychoeducation encounters* (%)	2.02	1.93
Had at least one laboratory test during study period (%)	88.84	87.91
Co-occurring disorder (%)***	21.62	24.67
Combat veteran eligibility (%)	4.41	4.02
Homeless (%)^	1.78	2.28
Male (%)**	90.87	92.67
Service-connected (%) ^	51.21	49.12

NOTE: ^ = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

Veterans with unknown marital status (0.7 percent) were grouped with never-married, single, and widowed, since their other characteristics more closely resembled those of this group than those of the married or widowed groups.

Although there are several statistically significant differences between respondents and nonrespondents, the practical significance of most differences is small. Notable differences include respondents being more likely to report having longer driving times to the nearest VHA facility than nonrespondents. Nonrespondents were more likely to have schizophrenia than respondents, while respondents were more likely to have MDD or PTSD. The rate of co-occurring disorders varied between respondents and nonrespondents (21.6 percent versus 24.7 percent). Respondents were more likely to be white (59.2 percent versus 55.5 percent) and married (40.4 percent versus 31.5 percent), but respondents and nonrespondents had comparable rates of being divorced (31.1 percent versus 32.2 percent). Significant differences were found for two of the six administrative-data performance indicators, with respondents more likely to have received any outpatient psychosocial visits during the study period (80.1 percent versus 77.9 percent) but less likely to have used MHICM (3.0 percent versus 4.2 percent). Men were less likely than women to be respondents (90.87 percent versus 92.67 percent). Nonrespondents were more likely to be of the pre-Vietnam service era (13.7 percent versus 10.4 percent) but less likely to be of the Vietnam era (49.0 percent versus 54.5%). OEF/OIF status is not included in the nonresponse analysis, since data on OEF/OIF status were not available to the project at the time of nonresponse weight development. Examination of OEF/OIF data subsequently provided to the project revealed that of the 9,619 veterans invited to participate in the survey, 369 (3.8 percent) were OEF/OIF veterans. OEF/OIF veterans were 26 percent of the Desert Storm veterans (n = 320), 21 percent of veterans in the other-period-of-service group (n = 29), 1 percent of the post-Vietnam group (n = 19), and 0.02 percent of the Vietnam era group (n = 1). Finally, 71 percent of non-OEF/OIF veterans responded to the survey, versus 66 percent of OEF/OIF veterans ($\chi^2(1) = 2.76$, $p = 0.097$).

We used logistic regression to develop nonresponse weights for the client survey. The inverse predicted response probabilities from these logistic regressions are the nonresponse weights for the client survey. The sensitivity of the nonresponse weights to the parametric assumptions of the logistic regression model was assessed by fitting a generalized boosted regression model (McCaffrey, Ridgeway, and Morral, 2004), which is a nonparametric regression method that allows for arbitrarily complex and flexible relationships between predictors and the nonresponse indicator. However, we found a correlation of 0.80 between nonresponse weights derived from both approaches, and weights covered a similar range. Thus, we opted to use the logistic-regression-based nonresponse weights, given the relative ease of interpreting the effect of each characteristic on nonresponse through interpreting the model coefficients.

Logistic-regression results for predicting response for the entire sample are presented in Table C.2.

Table C.2. Logistic Regression to Identify Veteran Characteristics that Predict Completion of the Client Survey, for 9,299 Veterans who were Eligible to Complete the Survey during November 2008–August 2009

	Odds Ratio	95% Wald Confidence Limits		df	Wald Chi-squared statistic	p
Age (versus 50 to <65)				3	7.63	0.0544
Under 35	0.709	0.539	0.933	1	6.04	0.0140
35 to <50	0.868	0.737	1.022	1	2.90	0.0886
65+	0.908	0.766	1.077	1	1.22	0.2685
Income (versus under $10,000)				2	0.24	0.8850
$10,000 to <$20,000	1.025	0.914	1.150	1	0.18	0.6699
$20,000 and above	1.024	0.917	1.143	1	0.18	0.6728
Driving time to nearest mental health care (versus under 15 minutes)				2	12.13	0.0023
15–30 minutes	1.052	0.946	1.170	1	0.88	0.3495
More than 30 minutes	1.221	1.091	1.368	1	11.99	0.0005
Diagnostic cohort (vs. schizophrenia)				4	83.74	<0.0001
Bipolar disorder	1.318	1.150	1.511	1	15.73	<0.0001
MDD	1.667	1.446	1.922	1	49.63	<0.0001
PTSD	1.689	1.461	1.952	1	50.22	<0.0001
SUD only	1.025	0.873	1.205	1	0.09	0.7601
Co-occurring disorder (versus no)				1	11.73	0.0006
Yes	0.819	0.731	0.918	1	11.73	0.0006
Combat eligibility (versus no)				1	1.18	0.2781
Yes	1.165	0.884	1.535	1	1.18	0.2781
Homeless (versus no)				1	0.00	0.9764
Yes	1.005	0.736	1.371	1	0.00	0.9764
Female (versus male)				1	7.21	0.0072

	Odds Ratio	95% Wald Confidence Limits		df	Wald Chi-squared statistic	p
Female	1.265	1.065	1.501	1	7.21	0.0072
Service-connected (versus no)				1	0.93	0.3352
Yes	0.952	0.862	1.052	1	0.93	0.3352
Variables from administrative data						
Received any psychosocial treatment or psychotherapeutic sessions	1.100	0.972	1.244	1	2.27	0.1321
Received any psychotherapy treatment in the outpatient setting	1.024	0.925	1.132	1	0.21	0.6494
Used MHICM	0.700	0.523	0.937	1	5.76	0.0164
Enrolled in supported employment	2.054	1.254	3.366	1	8.17	0.0043
Participated in one or more family psychoeducation encounters	0.974	0.708	1.341	1	0.03	0.8731
Evidence of at least one of the following laboratory screening tests; thyroid stimulating hormone, liver function, chemistry panel	1.072	0.933	1.232	1	0.96	0.3261
Marital status (versus married)				2	25.89	<0.0001
Divorced	0.817	0.729	0.916	1	11.96	0.0005
Never married/single/widowed[a]	0.742	0.661	0.834	1	25.01	<0.0001
Hispanic (versus no)				2	23.53	<0.0001
Yes	0.596	0.483	0.734	1	23.53	<0.0001
Missing	0.947	0.813	1.104	1	0.48	0.4899
Period of service (versus Vietnam)				4	13.62	0.0086
Pre-Vietnam	0.699	0.573	0.854	1	12.37	0.0004
Post-Vietnam	0.973	0.843	1.122	1	0.15	0.7024
Desert Storm	0.955	0.778	1.172	1	0.19	0.6594
Other	0.788	0.536	1.158	1	1.47	0.2256
Race (versus white)				3	5.70	0.1271
African-American	0.868	0.768	0.981	1	5.14	0.0234
Other	1.053	0.769	1.440	1	0.10	0.7489
Missing	0.935	0.809	1.081	1	0.83	0.3629

[a] Veterans with unknown marital status (0.7 percent) were grouped with never-married, single, and widowed, since their other characteristics more closely resembled those of this group than those of the married or widowed group.

When we adjusted for other veteran characteristics, income was not a statistically significant predictor of response, and age was borderline significant ($0.05 < p < 0.10$). However, veterans with greater driving distance to the nearest VHA facility offering mental health services were more likely to respond than those living within a 15-minute drive of such a facility. Probability of response varied by diagnostic

cohort; veterans in the schizophrenia cohort were less likely to respond to the survey, as were veterans with a co-occurring disorder. Other characteristics associated with lower response rates include not being married, being of Hispanic ethnicity, and being male. Response rates varied significantly by period of service, with veterans from the Vietnam era having significantly higher response rates than veterans of the pre-Vietnam eras. Probability of responding to the client survey was not significantly different for veterans of the two subcategories that include the most OEF/OIF veterans—Desert Storm or other periods of service—from that of the largest service period group, Vietnam veterans. Two of the six administrative-data performance indicators were significant predictors of response to the survey, with veterans who had used MHICM being less likely to respond, while those enrolled in supported employment were more likely to complete the survey.

One indicator of how representative the respondent sample is of the veteran population is the design effect (Kish, 1965), which is an indicator of the increase in variance expected due to weighting estimates to adjust for nonresponse bias. The design effect is 1.024, which translates into a small increase of 2.4 percent in the variance of estimates due to nonresponse weighting adjustment. While this is very encouraging, it should be noted that the design effect and weighting adjustments account for only observable characteristics included in the nonresponse analysis. The study team mitigated this as much as possible by deriving nonresponse weights using a comprehensive set of veteran characteristics, including measures of process of care from the administrative data, but it is possible that other unobservable factors could differ between respondents and nonrespondents.

In summary, there were statistically significant but few practically significant differences between respondents and nonrespondents, regardless of whether veteran characteristics were controlled for. The net effect of nonresponse on the variance of estimates is small, based on analyses of observed veteran characteristics, but how unobservable veteran characteristics affect nonresponse is unknown.

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Schizophrenia			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Diagnosis and Assessment			
Improve health of veterans through appropriate and timely diagnostic procedures	1. VA patients should be evaluated according to accepted standards of practice	History/physical exam, laboratory tests, time to complete definitive diagnosis, time to refer to mental health specialists, time to be seen by mental health specialists, consistency with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	2. VA patients should be screened for the full range of psychosocial deficits	DSM IV, Axis IV, VA clinical practice guideline recommended screening	Medical record, DSM IV, Axis IV, VA clinical practice guidelines
	3. All VA patients should be screened for risk of suicide, with documented follow-up for those with high or imminent risk	Documented evaluation of risk, documented implementation of follow-up plan consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Treatment			
Improve health of veterans through appropriate and timely treatment	4. VA patients should receive guideline-concordant treatment appropriate to diagnoses	Documented pharmacological and nonpharmacological treatment, adherence to treatment consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines

Schizophrenia			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
	5. VA patients should attain reduction or remission of target symptoms	Reduction in target symptoms (e.g., delusions, hallucinations), reduction in suicide risk, documented Global Assessment of Functioning (GAF) scores, side effects	Medical record, psychosis registry, GAF scores, SF-36 data, Survey of Healthcare Experiences of Patients (SHEP)
	6. VA patients should have an individualized, interdisciplinary plan developed in partnership with patient and family	Documented plan	Medical record
	7. VA patients should be placed in the appropriate treatment facilities/programs according to VA clinical practice guidelines	Compliance with admission and discharge criteria, consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	8. VA patients should receive follow-up by treatment team consistent with treatment plan for patients' chronic mental disorder	Provider- and patient-caused missed appointments, unfilled prescriptions, evidence of continuity of care	Medical record, pharmacy records
	9. For patients who do not adhere to treatment plan, steps should be taken, such as implementation of case management	Documentation of lack of adherence, corrective steps taken (e.g., case management, provider and patient issues in adherence consistent with VA clinical practice guidelines)	Medical record, VA clinical practice guidelines
	10. Patients and families should demonstrate satisfaction with care	Satisfaction scores on existing VA instruments	Satisfaction scores, SHEP

Schizophrenia			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
	11. VA patients should demonstrate improved functioning in life activities	Documented improvement in level of activities of daily living, engagement in functioning in social, family, and vocation/educational contexts	Medical record, GAF scores, SF-36, SHEP
	12. VA patients should receive assistance in obtaining full- or part-time employment that is appropriate to their interests and abilities	Documented vocational assessment and evidence of joint planning with the patient, documented evidence of assistance and employment as appropriate	Medical record
	13. VA patients should receive housing assistance and be appropriately housed	Documented evidence of housing	Medical record

Bipolar Disorder

Goal	Program Outcome	Proposed Performance Measure	Source
Diagnosis and Assessment			
Improve health of veterans through appropriate and timely diagnostic procedures	1. VA patients should be evaluated according to accepted standards of practice	History/physical exam, laboratory tests, time to complete definitive diagnosis, time to refer to mental health specialists, time to be seen by mental health specialists, consistency with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	2. VA patients should be screened for the full range of psychosocial deficits	DSM IV, Axis IV, VA clinical practice guideline recommended screening	Medical record, DSM IV, Axis IV, VA clinical practice guidelines
	3. All VA patients should be screened for risk of suicide, with documented follow-up for those with high or imminent risk	Documented evaluation of risk, documented implementation of follow-up plan consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Treatment			
Improve health of veterans through appropriate and timely treatment	4. VA patients should receive guideline-concordant treatment appropriate to diagnoses	Documented pharmacological and nonpharmacological treatment, adherence to treatment consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	5. VA patients should attain reduction or remission of target symptoms	Reduction in target symptoms (e.g., depression, mania), reduction in suicide risk, documented GAF scores, side effects	Medical record, psychosis registry, GAF scores, SF-36 data, SHEP

Bipolar Disorder

Goal	Program Outcome	Proposed Performance Measure	Source
	6. VA patients should have an individualized, interdisciplinary plan developed in partnership with patient and family	Documented plan	Medical record
	7. VA patients should be placed in the appropriate treatment facilities/programs according to VA clinical practice guidelines	Compliance with admission and discharge criteria, consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Chronic Disease Management			
Maximize health status of veterans	8. VA patients should receive follow-up by treatment team consistent with treatment plan for patients' chronic mental disorder	Provider- and patient-caused missed appointments, unfilled prescriptions, evidence of continuity of care	Medical record, pharmacy records
	9. For patients who do not adhere to treatment plan, steps should be taken, such as implementation of case management	Documentation of lack of adherence, corrective steps taken, e.g., case management, provider and patient issues in adherence, consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	10. Patients and families should demonstrate satisfaction with care	Satisfaction scores on existing VA instruments	Satisfaction scores, SHEP
Rehabilitation			
Improve ability to function in society	11. VA patients should demonstrate improved functioning in life activities	Documented improvement in level of activities of daily living, engagement in functioning in social, family, and vocational/educational contexts	Medical record, GAF scores, SF-36, SHEP

Bipolar Disorder			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
	12. VA patients should receive assistance in obtaining full- or part-time employment that is appropriate to their interests and abilities	Documented vocational assessment and evidence of joint planning with the patient, documented evidence of assistance and employment as appropriate	Medical record
	13. VA patients should receive housing assistance and be appropriately housed	Documented evidence of housing	Medical record

PTSD			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Diagnosis and Assessment			
Improve health of veterans through appropriate and timely diagnostic procedures	1. VA patients should be evaluated according to accepted standards of practice	History/physical exam, laboratory tests, time to complete definitive diagnosis, time to refer to mental health specialists, time to be seen by mental health specialists, consistency with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	2. VA patients should be screened for the full range of psychosocial deficits	DSM IV, Axis IV, VA clinical practice guideline recommended screening	Medical record, DSM IV, Axis IV, VA clinical practice guidelines
	3. All VA patients should be screened for risk of suicide, with documented follow-up for those with high or imminent risk	Documented evaluation of risk, documented implementation of follow-up plan consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Treatment			
Improve health of veterans through appropriate and timely treatment	4. VA patients should receive guideline-concordant treatment appropriate to diagnoses	Documented pharmacological and nonpharmacological treatment, adherence to treatment consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	5. VA patients should attain reduction or remission of target symptoms	Reduction in target symptoms (e.g., hyper-arousal, trauma reexperiencing, avoidance of associated stimuli), reduction in suicide risk, documented GAF scores, side effects	Medical record, GAF scores, SF-36 data, SHEP

PTSD			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
	6. VA patients should have individualized, interdisciplinary plans developed in partnership with patient and family	Documented plan	Medical record
	7. VA patients should be placed in the appropriate treatment facilities/programs according to VA clinical practice guidelines	Compliance with admission and discharge criteria, consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Chronic-Disease Management			
Maximize health status of veterans	8. VA patients should receive follow-up by treatment team consistent with treatment plan for patients' chronic mental disorder	Provider- and patient-caused missed appointments, unfilled prescriptions, evidence of continuity of care	Medical record, pharmacy records
	9. For patients who do not adhere to treatment plan, steps should be taken, such as implementation of case management	Documentation of lack of adherence, corrective steps taken (e.g., case management, provider and patient issues in adherence) consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	10. Patients and families should demonstrate satisfaction with care	Satisfaction scores on existing VA instruments	Satisfaction scores, SHEP

PTSD			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Rehabilitation			
Improve ability to function in society	11. VA patients should demonstrate improved functioning in life activities	Documented improvement in level of activities of daily living, engagement in functioning in social, family, and vocational/educational contexts	Medical record, GAF scores, SF-36, SHEP
	12. VA patients should receive assistance in obtaining full- or part-time employment that is appropriate to their interests and abilities	Documented vocational assessment and evidence of joint planning with the patient, documented evidence of assistance and employment as appropriate	Medical record
	13. VA patients should receive housing assistance and be appropriately housed	Documented evidence of housing	Medical record

Major Depressive Disorder			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Screening			
Improve health of veterans through appropriate screening for disease	1. All VA patients should be screened for depression	Proportion of patients seen who are screened	NOTE: These data are already collected in the network directors' performance measures (Office of Quality and Performance)
Diagnosis and Assessment			
Improve health of veterans through appropriate and timely diagnostic procedures	2. VA patients should be evaluated according to accepted standards of practice	History/physical exam, laboratory tests, time to complete definitive diagnosis, time to refer to mental health specialists, time to be seen by mental health specialists, consistency with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	3. VA patients should be screened for the full range of psychosocial deficits	DSM IV, Axis IV, VA clinical practice guideline recommended screening	Medical record, DSM IV, Axis IV, VA clinical practice guidelines
	4. All VA patients should be screened for risk of suicide, with documented follow-up for those with high or imminent risk	Documented evaluation of risk, documented implementation of follow-up plan consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Treatment			
Improve health of veterans through appropriate and timely treatment	5. VA patients should receive guideline-concordant treatment appropriate to diagnoses	Documented pharmacological and nonpharmacological treatment, adherence to treatment consistent with VA clinical practice guidelines	Medical record

Major Depressive Disorder			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
	6. VA patients should attain reduction or remission of target symptoms	Reduction in target symptoms (e.g., depressed mood/affect), reduction in suicide risk, documented GAF scores, side effects	Medical record, GAF scores, SF-36 data, SHEP
	7. VA patients should have individualized, interdisciplinary plans developed in partnership with patient and family	Documented plan	Medical record
	8. VA patients should be placed in the appropriate treatment facilities/programs according to VA clinical practice guidelines	Compliance with admission and discharge criteria consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Chronic-Disease Management			
Maximize health status of veterans	9. VA patients should receive follow-up by treatment team consistent with treatment plan for patients' chronic mental disorder	Provider- and patient-caused missed appointments, unfilled prescriptions, evidence of continuity of care	Medical record, pharmacy records
	10. For patients who do not adhere to treatment plan, steps should be taken, such as implementation of case management	Documentation of lack of adherence, corrective steps taken (e.g., case management, provider and patient issues in adherence) consistent with VA clinical practice guidelines	Medical record
	11. Patients and families should demonstrate satisfaction with care.	Satisfaction scores on existing VA instruments	Satisfaction scores, SHEP

Major Depressive Disorder			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Rehabilitation			
Improve ability to function in society	12. VA patients should demonstrate improved functioning in life activities	Documented improvement in level of activities of daily living, engagement in functioning in social, family, and educational or vocational contexts.	Medical record, GAF scores, SF-36, SHEP
	13. VA patients should receive assistance in obtaining full- or part-time employment that is appropriate to their interests and abilities	Documented vocational assessment and evidence of joint planning with the patient, documented evidence of assistance and employment as appropriate	Medical record
	14. VA patients should receive housing assistance and be appropriately housed	Documented evidence of housing	Medical record

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Substance-Use Disorders

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Goal	Program Outcome	Proposed Performance Measure	Source
Diagnosis and Assessment			
Improve health of veterans through appropriate and timely diagnostic procedures	1. VA patients should be evaluated according to accepted standards of practice	History/physical exam, laboratory tests including urine toxicology, time to complete definitive diagnosis, time to refer to mental health specialists, time to be seen by mental health specialists, consistency with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	2. VA patients should be screened for the full range of psychosocial deficits	DSM IV, Axis IV, VA clinical practice guideline recommended screening	Medical record, DSM IV, Axis IV, VA clinical practice guidelines
	3. All VA patients should be screened for risk of suicide, with documented follow-up for those with high or imminent risk	Documented evaluation of risk, documented implementation of follow-up plan consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Treatment			
Improve health of veterans through appropriate and timely treatment	4. VA patients should receive guideline-concordant treatment appropriate to diagnoses	Documented pharmacological and nonpharmacological treatment, adherence to treatment consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	5. VA patients should attain reduction or remission of target symptoms	Reduction in target symptoms (e.g., withdrawal symptoms, substance use, craving), reduction in suicide risk, documented GAF scores, side effects	Medical record, psychosis registry, GAF scores, SF-36 data, SHEP, patient survey, World Health Organization Disability Assessment Schedule II

Substance-Use Disorders

Goal	Program Outcome	Proposed Performance Measure	Source
	6. VA patients should have individualized, interdisciplinary plans developed in partnership with patient and family	Documented plan addressing integrated care of SUD and comorbidities	Medical record
	7. VA patients should be placed in the appropriate treatment facilities/programs according to VA clinical practice guidelines	Compliance with admission and discharge criteria consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
Chronic-Disease Management			
Maximize health status of veterans	8. VA patients should receive follow-up by treatment team consistent with treatment plan for patients' chronic mental disorder.	Provider- and patient-caused missed appointments, unfilled prescriptions, evidence of continuity of care and treatment retention, appropriate facilitation of mutual-help group involvement	Medical record, pharmacy records, Office of Quality and Performance measures
	9. For patients who do not adhere to treatment plan, steps should be taken, such as implementation of case management.	Documentation of lack of adherence, corrective steps taken, e.g., case management or other re-engagement efforts (e.g., telephone follow-up, outreach), provider and patient issues in adherence consistent with VA clinical practice guidelines	Medical record, VA clinical practice guidelines
	10. Patients and families should demonstrate satisfaction with care.	Satisfaction scores on existing VA instruments	Satisfaction scores, SHEP

Substance-Use Disorders			
Goal	**Program Outcome**	**Proposed Performance Measure**	**Source**
Rehabilitation			
Improve ability to function in society	11. VA patients should demonstrate improved functioning in life activities	Documented improvement in level of activities of daily living, engagement and functioning in social, family, legal, and vocational/educational contexts	Medical record, GAF scores, SF-36, SHEP, patient survey, World Health Organization Disability Assessment Schedule II
	12. VA patients should receive assistance in obtaining full or part time employment that is appropriate to their interests and abilities	Documented vocational assessment and evidence of joint planning with the patient, documented evidence of assistance and employment as appropriate	Medical record, patient survey
	13. VA patients should receive housing assistance and be appropriately housed	Documented evidence of housing	Medical record, patient survey