

Invisible Wounds of War

Psychological and Cognitive Injuries,
Their Consequences, and Services to Assist Recovery

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Systems of Care: Challenges and Opportunities to Improve Access to High-Quality Care

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Introduction

How can we best provide services for military personnel who are suffering from mental health and cognitive problems? The answer to that question is the focus of Chapter Seven.

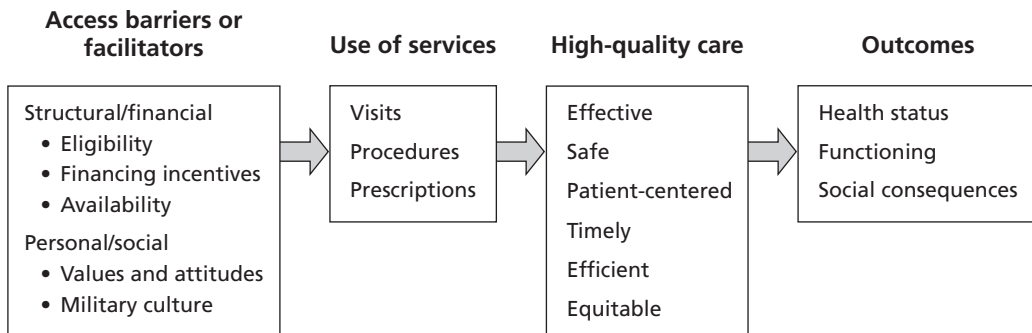
We examine the health care services available to military servicemembers who have returned from Afghanistan and Iraq with post-traumatic stress disorder or depression, or who have suffered a traumatic brain injury during their deployment.

We also examine gaps in these services, with the goal of supporting efforts to meet the mental health and cognitive needs of returning OEF/OIF servicemembers and veterans. We consider two kinds of service gaps: *gaps in access to care* and *gaps in quality of care*.

A *gap in access* exists when many individuals who need services are not using them. Many factors can contribute to underuse of services. Following a conceptual model commonly used in health services research (Institute of Medicine, 1993), we organize the contributing factors into two broad domains: (1) structural and financial aspects of the health service systems (e.g., eligibility rules, financial incentives, availability of services) and (2) personal and social factors (e.g., individual values and beliefs, military culture) (see Figure 7.1).

These factors can be either *barriers*, reducing the probability of service use, or *facilitators*, increasing use. Eliminating gaps in access to care will increase use of services among those who might benefit from the services.

Figure 7.1
Health Care Systems Improve Health Outcomes by Facilitating Access to Services That Provide High-Quality Care



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A *gap in quality* exists when the services that individuals typically receive are not consistent with high-quality care. Following the Institute of Medicine's Quality Chasm reports (Institute of Medicine, 2001, 2006), we define *high-quality care* as care that is

- based on the best available evidence and expert consensus about what is most effective
- safe (the expected health benefit is higher than the expected health risk)
- patient-centered, meaning that the values and preferences of individuals are respected in clinical decisionmaking and that patients are fully informed participants in decisions about their treatment
- timely (delays that might be harmful to health are avoided)
- efficient (waste of resources is avoided)
- equitable (care does not vary by gender, ethnicity, geographic location, etc.).

Eliminating gaps between high-quality care and usually practiced care will improve health outcomes among those who use services.

Figure 7.1 highlights that health outcomes are a function of *access to care* that results in use of services and *receipt of high-quality care* in the course of using those services. Thus, maximizing the benefits of health care services requires simultaneously facilitating access to services and ensuring that the services received are of high quality. Providing access to services that are not effective or that have unknown effectiveness may have little or no positive effect on outcomes, and they may incur costs to both the systems and the individuals who use services. Similarly, high-quality clinical care will have limited effect on outcomes if access to this care is poor for the broader population of those who would be expected to benefit from it.

There are many challenges to facilitating good access to services and ensuring high quality of care for mental and cognitive health. These challenges exist across the U.S. health care system and thus are not unique to the systems of care designed to serve military servicemembers and veterans.

Access and Quality Challenges

Epidemiologic studies of the general U.S. adult population show that, among individuals likely to have experienced a mental disorder in the past year, six in ten do not use any health care services for their mental health problems. Of the four in ten who do use services, only about half of these receive care from a mental health specialist (Wang, Lane, et al., 2005).

Good access to mental health care in the United States has long been hampered by limited mental health benefits in employer-sponsored health insurance and by cost-constrained publicly funded services that provide access to the most severely disabled but have limited resources for serving a broader array of problems and populations. Other long-standing barriers to access include poor availability of specialty mental health services in rural areas and the difficulties of developing capacities to provide language and culturally appropriate services for the diversity of Americans.

Thanks to advocacy, education, and growing public awareness, social and personal barriers to access—including the stigma associated with being viewed as having a mental disorder and public attitudes and misunderstandings about mental health conditions and their treatments—have lessened over time. However, these attitudes still significantly affect the willingness of individuals to consider and seek care for mental health problems.

Studies that have examined the discrepancy between typical health care received by Americans and high-quality, evidence-based care inevitably find a striking gap, not only for care of mental disorders but for care of many other medical conditions. In a large study of adult populations of 12 metropolitan areas of the country, researchers found that, among those with major depression, about six in ten who used any health services received recommended care—that is, care meeting standards of professionally accepted practice guidelines (McGlynn et al., 2003). Similar findings were reported for stroke, coronary artery disease, and asthma. So large and pervasive is this gap that it is often termed the “Quality Chasm” by health policy and services researchers, after the title of a seminal report published by the Institute of Medicine in 2001.

The failure to provide high-quality care is, by and large, not a problem of health professionals being uncaring or incompetent; rather, poor quality often stems from multiple and complex failures involving the policy and regulatory environment, coordination among multiple and complex systems of care, the organization of the health care facility and its staff, information systems, interactions between professionals and patients, and financial incentives that have perverse effects on quality at all levels—from patient to system (Berwick, 2002).

Barriers to access and failures to provide high-quality care are challenges that confront health care and mental health care systems generally. However, American leaders, the Department of Defense (DoD), the Department of Veterans Affairs (VA), and the public concur that military servicemembers who have served in Afghanistan and Iraq should receive care of the highest quality. Americans want the nation's servicemembers and their families to have good access to appropriate and high-quality health care for service-related mental health and cognitive problems—both during their active duty service and after they have returned to civilian life.

With political will galvanized to improve care for mental health conditions and traumatic brain injury for American servicemembers, there is an historic opportunity for transformation that can facilitate access to and improve quality of care. But the magnitude of the challenges should not be underestimated. Mandates that assume quick, simple solutions to these complex problems are unlikely to significantly affect the bottom line—more servicemembers getting care that helps them recover from their mental health and cognitive conditions—even when there is some satisfaction to seeing things happen quickly.

Lessons from the broader health services field suggest that a sustained systems approach will be required to make significant advances in care. Such an approach would encompass a broad perspective—from policy environment, to organization of the delivery of care, to patient-therapist interaction—concerning the policy levers that can drive change. This broad perspective would also point toward sustained investment in an information infrastructure that can support continuous assessment and evaluation and would engender an organizational environment and culture that can learn from experience and strive toward improvements.

Study Approach

We aimed to address the following questions regarding gaps in care for military servicemembers and veterans who have been deployed in OEF or OIF:

Access-to-Care Questions

1. What is the gap in access to care?
2. What structural factors impede or facilitate access?
3. What social, cultural, and personal factors impede or facilitate access?

Quality-of-Care Questions

1. What is high-quality, evidence-based care for the key mental and cognitive injuries of war?
2. What organizational models are needed to support high-quality care?
3. To what extent are quality standards and processes supported in systems of care serving servicemembers and veterans of OEF/OIF?

Our study focused on post-deployment services in the United States for active duty military servicemembers, including deployed members of the Reserve Components (reservists and National Guardsmen), and for veterans of OEF/OIF. We examined both the Military Health System (MHS) and VA health services. In addition, we considered the broader array of community services that may be available to military servicemembers and veterans. We did not focus on services provided in theater during deployments. We recognize that in-theater care, including early intervention and acute treatment, is very important, but an examination of these approaches and services was beyond the scope of our effort.

To address the study questions, we reviewed existing published literature and special reports that focus on services available to military servicemembers and veterans. Our review was intended to provide a broad picture of the systems of care and services available for care of mental health conditions and TBI, as these systems are currently organized. We recognize, however, that much change is under way to implement numerous recent recommendations calling for changes and expansion of services, through efforts led by the President, Congress, the Department of Defense, and the Department of Veterans Affairs. Although it was not possible to describe the nature and extent of change that is being undertaken at present, when relevant, we refer to published plans to implement recommendations.

To enrich our understanding of these systems of care, we conducted semi-structured interviews with selected policy administrators and health service system managers within the MHS and Veterans Health Administration (VHA). Interviews elicited these leaders' perspectives on how care is structured and on issues related to access and quality of care. See Appendix 7.A for details about how we identified interview participants, as well as the content and analysis of those interviews.

We also conducted focus groups with soldiers, marines, reservists, and guardsmen who had returned from deployments, and with some of their spouses, to understand their perspective as consumers of military and veteran health services. We asked participants about the signs and symptoms of stress that servicemembers experience when returning from deployment, where they would seek care for these types of signs and symptoms, and about the types of barriers they might experience in obtaining services. Appendix 7.B provides additional details about the focus-group methods. We use selected quotes from the focus-group participants to illustrate points that are consistent with existing literature and government reports, rather than relying on them as stand-alone evidence.

Finally, we drew lessons from the broader general health and mental health services research field to provide a framework for understanding and illuminating both gaps in care and promising approaches for improving access and quality. This included a review of the scientific evidence for specific treatments for PTSD, major depression, and TBI, the details of which are provided in Appendix 7.C.

We endeavored to review and synthesize information in a way that would shed light on key gaps in access to and quality of care across the multiple and complex systems of health care that are available for returning OEF and OIF servicemembers and veterans. While our review broadly encompassed relevant systems of care from a national perspective, it did not include a detailed examination of specific treatment programs, facilities, regions, or installations. We recognize that this broad approach does not provide insight into the large variation that exists across locales and organizations, and that there is much to be learned from examining localized examples of innovation, excellence, and gaps in care. This more-detailed level of examination, however, was beyond the scope of our effort. Our examination focuses on larger, overarching issues that need to be addressed within and across the systems to facilitate improvements.

The first part of this chapter is focused on mental health services for PTSD and major depression; it addresses questions regarding gaps in access to and quality of services for these conditions. Because services for TBI primarily fall outside of mental health specialty care, instead involving acute medical care, neurology, and rehabilitative care specialties, we consider separately gaps in access to and quality of care for TBI, as a second part of the chapter.

Access to Mental Health Care for PTSD and Major Depression

Barriers that limit access to post-deployment mental health services are addressed in this section. First, we review the evidence suggesting an unmet need for mental health treatment services. We then consider structural factors that underpin problems with treatment access, which include the organization of the DoD and VA health care systems, limitations in staffing, and challenges to continuity of care. Finally, we discuss social, cultural, and personal factors influencing attitudes toward seeking mental health care.

What Is the Gap in Access to Care?

Increasing numbers of U.S. servicemembers serving in Afghanistan and Iraq develop mental disorders and cognitive injuries while deployed. PTSD is the most prevalent mental health condition, affecting between 5 and 15 percent of servicemembers, depending on who is assessed and when and how they are assessed (see Chapters Three and Four). Depression also affects a substantial number of servicemembers, with 2 to 14 percent meeting diagnostic criteria for major depression (see Chapters Three and Four).

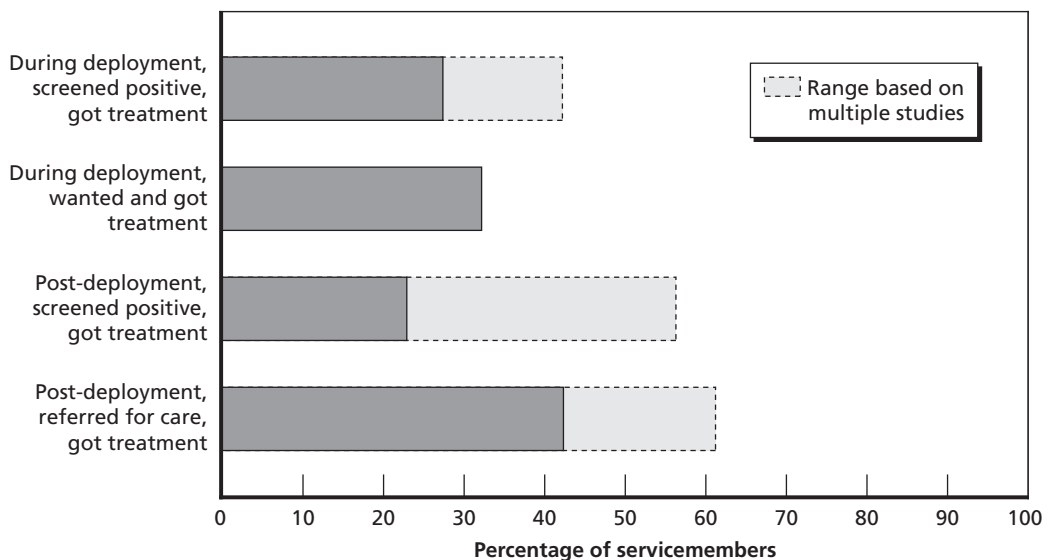
Despite the relatively high prevalence of mental health conditions among deployed servicemembers, information about their access to mental health services, both in-theater and post-deployment, is limited. However, available data point to substantial

unmet need for services (see Figure 7.2). The research findings on mental health service utilization referred to in this chapter are listed in Appendix 7.D.

Mental Health Needs During Deployment. Only about one-third of OIF soldiers and marines who screened positive for a mental health condition reported receiving mental health care while deployed (U.S. Department of the Army, Office of the Surgeon General, 2003, 2005; U.S. Department of the Army, Office of the Surgeon General, Office of the Surgeon, Multinational Force–Iraq and Office of the Surgeon General, U.S. Army Medical Command, 2006a, 2006b). Not all servicemembers who screen positive for mental disorders may welcome mental health services, particularly if there are negative attitudes toward or consequences associated with receiving care. However, one study found that a similarly low proportion of soldiers (32 percent) who were interested in receiving mental health services actually received treatment (Grieger et al., 2007).

Mental Health Service Needs After Deployment. The need for mental health treatment does not end when the servicemember returns from deployment. In fact, the need is likely to increase because conditions such as PTSD may appear months or even years after exposure to the traumatic event. Only about one-third (23–40 percent) of military personnel who met screening criteria post-deployment received any professional help; 13 to 27 percent received care from mental health professionals (Hoge et

Figure 7.2
Profile of Gaps in Mental Health Care



SOURCES: U. S. Department of the Army, Office of the Surgeon General, 2003, 2005; U. S. Department of the Army, Office of the Surgeon, Multinational Force–Iraq and Office of the Surgeon General, United States Army Medical Command, 2006a, 2006b; Hoge, Castro, et al., 2004; Hoge, Auchterlonie, and Milliken, 2006; Milliken, Auchterlonie, and Hoge, 2007.

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al., 2004). These rates are comparable to those found in the general population (Wang, Berglund, et al., 2005; Wang, Lane, et al., 2005). In our survey (see Chapter Four), we found that only half of those who met criteria for PTSD or major depression in the past 30 days had seen a physician or mental health provider at least once about a mental health condition in the past year.

An additional concern is the large proportion of individuals with a post-deployment health-assessment referral for mental health services who do not receive treatment. The *assessment*, which is designed to identify post-deployment health concerns early, entails completing an online health screening, then having an interview with a medical provider, wherein the servicemember's responses are discussed and, if necessary, a referral for mental health services is provided. (A revised version of this form in September 2007 added questions related to traumatic brain injury.)

Only about half of OEF or OIF veterans with a referral for a mental health problem listed on the post-deployment health assessment used mental health services (Hoge, Auchterlonie, and Milliken, 2006; Milliken, Auchterlonie, and Hoge, 2007). Rates of mental health problems were higher among the Reserve Component than among the Active Component (Milliken, Auchterlonie, and Hoge, 2007). Most mental health services were delivered through mental health clinics; a few were delivered in a primary care setting (Hoge, Auchterlonie, and Milliken, 2006).

The number of servicemembers receiving a mental health referral following the post-deployment health screening may be artificially low. Servicemembers say they do not always report mental health concerns because they fear that doing so might delay their return home (finding from the focus group). GAO (2006b) also identified that only one in five of those who met screening criteria for PTSD on the assessment were referred for follow-up evaluation, indicating that a substantially smaller percentage of servicemembers who need services upon returning home might actually receive them. At the same time, others who do not receive referrals still seek care; approximately 15 to 18 percent of individuals who did not receive a referral for mental health services did, in fact, access services once home (Milliken, Auchterlonie, and Hoge, 2007).

The limited data available suggest substantial gaps between the need and the desire for mental health services and access to care. Reasons for these gaps include structural issues, such as the organization of the DoD and VA health care systems; eligibility requirements for using care; staffing; and information flows. However, negative attitudes about mental health care or the consequences associated with receiving care are key access issues for military servicemembers and are the most challenging to overcome.

To understand access to mental health care for military servicemembers and veterans, we must understand the organization of the health service systems that provide services to these individuals. Below, we provide a brief overview of health systems that serve military servicemembers and veterans. In the remainder of the section, we review structural and personal factors that affect access to mental health care.

Overview of Health Service Systems

The Department of Defense and Department of Veterans Affairs provide extensive health care services, ranging from preventive services to the care of multiple combat-related injuries (polytrauma). DoD's military health system has two primary missions: to enhance DoD's and our nation's security by providing health support for the full range of military operations, and to sustain the health of all those entrusted to its care. This system serves members of the Active Component and their family members, military retirees and their families, as well as some Reserve Component personnel. In FY2006, the MHS spent about \$41.6 billion on health care (TRICARE, 2007).

The component of the Department of Veterans Affairs that deals with veterans' health care is the VHA, whose mission is to honor America's veterans by providing exceptional health care to improve their health and well-being. As such, the VHA is designed to provide health care services to eligible veterans of military service. In FY2006, Congress appropriated \$31 billion for health care to the VHA for its 7.9 million enrolled veterans and active duty and retired military personnel and their beneficiaries (Department of Veterans Affairs, 2007e).

In addition to DoD and VA health service systems, servicemembers and veterans may access mental health services that are generally available in the community. Key service systems available to servicemembers and veterans are summarized in Table 7.1.

The Department of Defense. The Office of the Assistant Secretary of Defense for Health Affairs establishes policies, procedures, and standards that govern DoD health care programs, manages DoD health and medical resources, oversees TRICARE (the health plan of the MHS), directs deployment medicine policies, and ensures consistent, effective implementation of DoD policy throughout the MHS. The individual Services (Army, Navy, Air Force) are responsible for managing and delivering the health care services in garrison and health care support during military operations.

The MHS provides *direct care* to its beneficiaries through Military Treatment Facilities and clinics, supplemented by *purchased care* through civilian health professionals, hospitals, and pharmacies, which are financed through managed care contracts and fee-for-service (FFS) reimbursements (TRICARE, 2007).

TRICARE. Roughly 9 million active duty servicemembers, active duty family members, retirees,¹ and families of retirees are eligible to receive medical care through TRICARE (TRICARE, 2007). Beneficiaries have two primary TRICARE options: an HMO-like plan called *TRICARE Prime*, which delivers care through military hospitals and clinics, and contracted civilian network providers; and a fee-for-service plan called *TRICARE Standard*. Within Standard, beneficiaries can exercise a preferred provider option (PPO), *TRICARE Extra*, which requires that an individual use in-network providers, but lowers the out-of-pocket co-payment costs to 15 to 20 percent of standard

¹ *Retirees* refers to those servicemembers who retire after a required number of years of service and qualify for military retirement benefits, including TRICARE.

Table 7.1
Summary of Systems Providing Mental Health Services

System	Services Offered Through (or by)	Population
In-Theater: DoD	Embedded MH providers/support (chaplains) Treatment facilities in theater	Active duty forces in theater
Stateside: DoD	Embedded MH providers/support (chaplains) Military Treatment Facility (TRICARE) Military OneSource Community providers in TRICARE network	Active duty Reserve/Guard ^a Retired military Dependents of active duty, military retirees, and Reserve/Guard ^a
VA	VA health facilities and clinics VA polytrauma centers ^b Vet Centers	Combat veterans Individuals with Service-connected disability ^c
Community	Private physicians or clinics Other community support programs Public health clinics or providers	Access may require employer-sponsored health insurance ^d

SOURCES: TRICARE, 2007; Department of Veterans Affairs Web site.

^a Based on duty status and TRICARE eligibility.

^b Active duty servicemembers with multiple combat-related injuries may receive initial care through the VA polytrauma centers and may transfer back to DoD upon recovery.

^c Access is based on priority rating system and enrollment; for those without rating, depends on time since separation from service.

^d Services may be paid out of pocket or through other insurance.

costs (TRICARE, 2003, 2007). Individuals eligible for TRICARE Standard/Extra may also receive care at an MTF at no charge on a space-available basis. All active duty servicemembers, including reservists and guardsmen who are called to active duty for more than 30 days, are automatically enrolled in TRICARE Prime at no charge. Active Component servicemembers and activated Reserve Component personnel who do not live close to an MTF are enrolled in *TRICARE Prime Remote*, which provides comparable benefits to TRICARE Prime. Table 7.2 describes these options and their eligibility requirements for active duty and retired servicemembers.

In FY2006, the MHS direct-care system included 83,800 primary care providers, 77,300 specialists, 65 inpatient hospitals and medical centers, 412 ambulatory medical clinics, and 414 ambulatory dental clinics within the United States (TRICARE, 2007). However, despite the large number of MHS providers and facilities, many beneficiaries, particularly retirees and members of the Reserve Component, and their families, rely more heavily on purchased care because they reside outside of MTF Catchment and Prism areas (TRICARE, 2007).

Table 7.2
TRICARE Plans for Active Duty Servicemembers and Retired Servicemembers

Plan	Description	Eligibility
Prime	HMO No charge for active duty personnel. Retired veterans pay to enroll and have applicable co-pays. Must receive care through primary care provider unless referred out.	All active duty automatically enrolled. Reserve and Guard eligible if called to active duty for 30+ days. Retired veterans not eligible for Medicare are eligible, at beneficiary level.
Standard/Extra	Standard: Fee for service 20–25% co-pay; may see any authorized provider. Extra: PPO 15–20% co-pay. Must see TRICARE network provider.	Retired veteran not eligible for Medicare.
Prime Remote	HMO No charge for active duty personnel.	Active duty and activated Guard and Reserve who do not live close to an MTF.
Reserve Select	Similar to Standard/Extra and requires monthly premium.	Members of the Selected Reserve. Must commit to 1 year of service.

What Structural Factors Impede or Facilitate Access to DoD Mental Health Services?

Various Sources of Mental Health Care Are Available. U.S. military personnel have several options when seeking help for mental health problems: talking with U.S. military chaplains or mental health practitioners embedded in operational units, seeking counseling offered in community service programs, obtaining mental health services provided by MTFs within both specialty mental health and primary care settings, getting information and counseling available through Military OneSource, and pursuing a range of health and specialty mental health services available from TRICARE civilian network providers. Other treatment options are also available and often vary from one military installation to another. The review below is intended to provide a broad but not exhaustive overview of DoD mental health services available to servicemembers.

Chaplains. Multifaith chaplains are available to every military unit and may be uniquely suited as a first point of entry for mental health care. They train and deploy with units, get to know unit needs, and provide what is called a “ministry of presence.” Military chaplains offer *nonclinical counseling*, which means that it does not rely on formal psychotherapeutic approaches. Since discussions with chaplains are confidential, they may serve as “safe havens” for troubled servicemembers who feel they have nowhere else to turn. Chaplains routinely refer servicemembers to other sources of care and assistance, including formal mental health resources; help implement the Army and Marine Corps’ return and reunion educational program; and assist in suicide-prevention programs (Force Health Protection and Readiness Military Mental Health, 2007).

Unit-Embedded Mental Health Providers. Each of the Services is actively embedding mental health professionals into operational line units. For example, a Marine Corps program called the Operational Stress Control and Readiness Program, or OSCAR, integrates mental health teams at the regimental level.² It has been implemented in all three active divisions and will eventually expand to the entire force (Gaskin, 2007). In addition, the Army is embedding a behavioral health officer and an enlisted mental health specialist into the new Brigade Combat Team structure to augment division mental health assets, which include a division psychiatrist and a senior noncommissioned officer (NCO).

Embedded programs increase access to providers in garrison for servicemembers. But they may also offer other strengths. According to a stakeholder interview, because military practitioners learn about the culture in which they are embedded, they are likely to better understand the challenges, barriers to care, and obstacles that servicemembers face. More important, mental health professionals may become trusted members of the operations community. Surveys conducted by the Mental Health Advisory Team have shown that Army soldiers experiencing significant distress while deployed in Iraq were three times more likely to turn to a fellow soldier for help than to mental health personnel (U.S. Department of the Army, Office of the Surgeon General, 2003).

Counseling Within Community Service Programs. Each branch of the military has community service programs at the local-installation level, including short-term individual and group counseling, generally provided by civilian masters-level counselors or social workers. The programs offer assistance on issues ranging from combat stress, anxiety, and sadness to marital and parenting problems and financial difficulties. Servicemembers who present to these programs with a major mental health condition, such as PTSD or major depression, are supposed to be referred to the MTF. However, many program counselors may provide treatment for less-serious cases of PTSD or depression. Counseling services offered through these service programs are confidential: Counseling visits are not recorded or linked to the medical facility; thus, the encounter is not recorded in the servicemember's medical record. Mental health conditions and other problems are reported to command, mainly in cases of suspected abuse or intention to inflict harm on oneself or others. The availability of such counseling services varies from base to base, as do the background, skills and training of counseling staff.

Specialty Mental Health Care Within Medical Treatment Facilities. A more formal avenue for mental health treatment, Medical Treatment Facilities are the primary source of specialty mental health care for military personnel. Services are traditionally provided by mental health clinics that are either stand-alone entities or located in base hospitals. Staff include military and civilian psychiatrists, psychologists, social workers, and enlisted mental health technicians. Services include diagnostic evalua-

² A regiment in the Marine Corps is composed of approximately 4,800 marines.

tions, medication management, and psychotherapeutic treatments for mental health conditions, such as PTSD and major depression. Treatment sessions are supposed to be unlimited, and program descriptions found on the Internet frequently assert that walk-in consultations are available. Treatment slots are primarily reserved for active duty servicemembers; within MTFs, treatment for retired personnel and families of active duty personnel depends on availability.

Most MTF-based mental health treatment is conducted on an outpatient basis; specialized PTSD programs are available only at select installations, such as the National Naval Medical Center. The Department of Defense also runs a three-week program of customized PTSD treatment at Walter Reed Army Medical Center. Inpatient psychiatric care is available at several MTF locations across the military system.

Mental Health Services in Primary Health Care. A growing trend in both civilian and military sectors is integration of mental health professionals into primary care medical practices. Integration has several potential benefits, including increased recognition of mental disorders, improved clinical outcomes and satisfaction with care, and reduction in health care costs (Beardsley et al., 1998; Smit et al., 2006; Katon, Von Korff, et al., 1995; Katon, Robinson, et al., 1996). Mental health practitioners provide unique services in primary care settings, including “short, focused assessments; brief interventions in support of the primary care treatment plan; skill training through psycho-education and patient education strategies; training in self-management skills and behavioral change plans; and on-the-spot consultation” (Department of Defense Task Force on Mental Health, 2007a, p. 18). These responsibilities differ significantly from the longer-term, more focused services provided by staff in traditional military mental health clinics.

In response to the findings of the Mental Health Task Force (Department of Defense Task Force on Mental Health, 2007a), DoD plans to focus on greater adoption of primary care–mental health integration. The Army has implemented the RESPECT-Mil program in several MTFs. Based on a civilian version of the program, this intervention integrates efforts of a primary care clinician, a care manager, and a mental health professional, working in conjunction to manage a patient’s depression. This program is described in more detail in the Quality of Mental Health Care section. In addition, the Navy is instituting Deployment Health Clinics at installations throughout the Department of the Navy and Marine Corps. Staff will include primary care providers, psychologists, psychiatrists, social workers, and certified medical assistants. Care for mental health problems, including PTSD, will be a key focus (Koffman, 2007). Because sailors and marines have reason to visit these clinics for purposes other than mental health issues—e.g., for their annual preventive health assessments and Post Deployment Health Assessments and Reassessments—the clinics can serve as a “non-stigmatizing portal of care” (Koffman, 2007, p. 25). Thirteen clinics were opened in FY2007, and another five clinics were brought online early in FY2008 (Koffman, 2007).

Military OneSource. Military OneSource is an information and consultation service offered by the Department of Defense (through the Military, Family, and Community Policy directorate within the Under Secretary of Defense for Personnel and Readiness) to servicemembers in the Active and Reserve Components (regardless of activation status) and their families. Retired or separated servicemembers and their family members are eligible to receive services at no cost for up to six months after separation. When a military member has an emotional, family, or adjustment problem, he or she may call a Military OneSource consultant for assistance. According to a stakeholder interview, OneSource services are not intended to provide medical treatment for PTSD, major depression, or other major mental health conditions. The consultants triage calls, referring the caller either to a counselor for six prepaid counseling sessions or, for those identified with a major mental disorder (including PTSD and major depression), to the appropriate medical care provider, which may be a Military Treatment Facility, VA hospital, or TRICARE civilian provider. However, triage is not perfect, and, according to a stakeholder interview, some individuals with these health conditions may be receiving treatment via the six free counseling sessions.

The majority of Military OneSource consultants have master's-level training and a license to provide counseling or an employee assistance professional (EAP) certification. After the initial contact, the OneSource consultant remains in contact with the military or family member to ensure that the recommended provider connection was made and that the service was perceived to be satisfactory. The six free counseling sessions are provided by a network of community specialty mental health providers, usually via office visits, but individuals who live in remote locations, lack transportation or adequate childcare, or work overseas may receive telephonic counseling sessions. Use of OneSource resources is confidential; use is not disclosed to the military, unless there is evidence that an individual may be a threat to him-/herself or others.

Civilian TRICARE Providers. Civilian TRICARE networks are another important source of mental health care for the military community. Active duty servicemembers must obtain a referral from the local MTF or service point of contact in remote locations to receive care from a civilian provider. However, TRICARE civilian networks do provide an increasing level of services for families, retirees, and active duty servicemembers stationed far from installations. In addition, several different TRICARE benefits programs also help fill potential gaps in health insurance coverage for Reserve Component servicemembers.

TRICARE does not offer specialized PTSD or depression treatment programs. Instead, beneficiaries can identify locally based providers for treatment through a central referral process that can be accessed by Web or by phone. TRICARE will reimburse for a maximum of two psychotherapy sessions per week in any combination of individual, family, or group sessions. Eight sessions are provided without the need for

referral from a primary care provider.³ TRICARE Prime involves no deductible or co-pay for active duty personnel and their dependents.

Service Availability Is Variable, and Some Gaps Are Reported. With the burgeoning patient population, the availability of mental health care at MTFs has come into question. Several recently published reports attest that servicemembers interested in accessing mental health care often face long wait lists (Johnson et al., 2007; Department of Defense Task Force on Mental Health, 2007a). Although these wait times can vary considerably from one behavioral health clinic to another; the DoD Mental Health Task Force noted that delays of 30 days for an initial mental health appointment are not uncommon. The problem with delays is not just a matter of inconvenience. Timely enrollment in treatment following a decision to seek treatment is critical to ensuring proper compliance with treatment protocols and successful treatment outcomes. Delays in treatment may “result in people not obtaining treatment at all” (Johnson et al., 2007, p. 46).

In some cases, the treatment provided is not available to everyone who needs it. The three-week program of intensive PTSD care by the Deployment Health Clinical Center at Walter Reed has the capacity to treat only a limited number of patients a year (Hull and Priest, 2007), likely far less than the number of people who would benefit from the program.

These challenges in providing services are distributed unevenly across the United States. “Some communities have adequate numbers of providers who are well-qualified to care for military personnel and their families. Unfortunately, shortages of qualified providers in other communities raise significant barriers to the provision of needed care” (Johnson et al., 2007, p. 43). The Department of Defense Mental Health Task Force (2007a, p. 44) notes that “too often, the psychological health services available to servicemembers and their families depend on their location rather than their psychological health needs.”

Providing mental health services for the Reserve Component constitutes a special challenge. When reservists are deactivated, they return to their homes across the country. This geographic dispersion can create a significant distance between those needing care and the MTFs or VA facilities that can provide it. Distance from a facility may also affect Active Component dependents, because many spouses and their children move away from installations during deployment and may lose easy access to MTF or civilian network services.

Unfortunately, DoD’s provider-allocation system cannot systematically assess where shortages occur. The system is based on services that clinics render. It does not track suppressed demand (i.e., those who need care but are unable to access it). Indeed,

³ Where necessary, 30 days of hospitalization are permitted per fiscal year for beneficiaries 19 and over, and up to 45 days are allowed for those age 18 or under. Children and adolescents receive coverage for residential treatment care for 150 days per fiscal year, and partial hospitalizations are covered for up to 60 days.

one interview contact noted, “Access cannot be measured without first knowing the need, and we don’t know what the need is.”

Responding to recommendations from the Mental Health Task Force, DoD is implementing a population-based risk-adjusted model that may more accurately gauge installation-specific mental health staffing needs. The Center for Naval Analyses will evaluate and refine the model (Department of Defense Task Force on Mental Health, 2007a).

Challenges in Meeting the Mental Health Demands of Servicemembers. There are a number of reasons that the military services may have a difficult time providing servicemembers with full access to mental health care. First, outpatient care in DoD behavioral health clinics is usually available during standard working hours (i.e., 0730–1630 or 0800–1700). When units return from deployment, they immediately begin a new training cycle to prepare for their next rotation in-theater. To obtain a mental health evaluation or participate in weekly treatment sessions, servicemembers must take time away from what is already a robust deployment-training tempo. Many are hesitant to take time away from such training, much less identify the reasons for their absence. Of surveyed soldiers, 55 percent cited the inability to take time off of work as a major impediment to seeking mental health care (Hoge et al., 2004). Our own study also shows concerns about getting time off of work (see Chapter Four).

Second, there are not enough military mental health providers on staff: “The DoD currently lacks the resources—both funding and personnel—to adequately support the psychological health of servicemembers and their families” (Department of Defense Task Force on Mental Health, 2007a, p. 41). The Mental Health Task Force Report cautions that, absent increased congressional funding, few Task Force recommendations can be implemented.

Third, it is often suggested that uniformed mental health providers offer a service that cannot easily be replaced by their civilian counterparts. Military providers understand the military culture and the social context in which mental health problems are manifested, diagnosed, and treated. They are best able to make judgments about fitness for duty, and they have the requisite credibility to educate commanders and form an alliance of trust with their uniformed patients.

Unfortunately, it is with these uniformed providers that manpower shortages are most acutely felt. Available data suggest significant vacancies in prewar mental health personnel slots for social workers, psychologists, and psychiatrists for the Navy, Air Force, and the Army (Russell, 2007). The number of active duty mental health professionals dropped by 20 percent for the Air Force from FY2003 through FY2007, 15 percent for the Navy from FY2003 through FY2006, and 8 percent for the Army from FY2003 through FY2005. Data from FY2006 and FY2007 may reveal even larger declines (Department of Defense Mental Health Task Force, 2007a).

The U.S. military acquires its licensed psychologists and psychiatrists through internship training programs and Graduate Medical Education residency programs,

respectively. The psychology internship program is a coveted training slot, and more highly qualified candidates routinely apply than can otherwise be accepted. However, this trend is reversing. For the 2007/2008 training year, the Navy filled all ten of its training vacancies, but the Army filled 13 of 36 slots, and the Air Force, 13 of 24 slots (Department of Defense Task Force on Mental Health, 2007a). Anecdotal evidence suggests that psychiatry-residency positions are similarly becoming difficult to fill. If the new trend continues, its ramifications for providing military mental health care will be felt for years (Department of Defense Task Force on Mental Health, 2007a).

A related challenge is effective utilization of social workers. Social workers represent the largest group of mental health practitioners in the nation; in the Army and Air Force, they are 33 and 38 percent, respectively, of the mental health provider workforce (Defense Manpower Data Center, 2006). However, in the Navy, social workers constitute only 11 percent of the mental health provider workforce, and they are encumbered by significant practice limitations. In addition, the Navy is civilianizing all 32 social-work slots as part of its strategy to decrease end-strength by 30,000 (Arthur, 2007).

Challenges with Recruiting and Retaining Uniformed Providers. Several factors contribute to problems with acquiring and retaining uniformed providers. To reduce costs, DoD has cut the number of active duty personnel slots for mental health staff and has relied more heavily on civilian contract providers. But with the high deployment tempo, uniformed providers are required to deploy overseas at an increasing rate, leaving fewer to provide for in-garrison psychological health needs. The result is high work-related stress for both deployed providers and those remaining behind. *MHAT-II Report* (U.S. Department of the Army, Office of the Surgeon General, 2005) documented that 33 percent of Army behavioral health personnel suffer from high levels of burnout. “That’s something that we didn’t anticipate five years ago,” observed one mental health provider.

Comparability of pay and opportunities for promotion are other issues. Medical officers are eligible for a variety of retention bonuses or special pays. For example, an anesthesiologist who signs a three-year contract is eligible for a \$38,000 bonus. Psychiatrists are eligible for a \$19,000 bonus. The U.S. Navy just recently authorized a retention bonus for psychologists. However, no such bonuses for psychologists are scheduled for the U.S. Army (Medical Service Corps, 2002; Military.com, 2007b). As military officers, psychologists and social workers must also perform well as leaders and managers to successfully compete for promotion. In addition to being a capable provider, each must be a capable officer. In the opinion of one commentator, “Being an outstanding or ‘expert’ clinician in military medicine is not an advantage for promotion . . .,” particularly for master’s-level clinicians, such as social workers and psychologists (Russell, 2007, p. 16). This situation may be due, in part, to the difficulty of objectively measuring how well clinicians are practicing.

Hiring civilian mental health practitioners to provide care within MTFs may offer a short-term, albeit imperfect, solution to the shortfall in uniformed providers,

but there are challenges with this option as well. DoD salaries for civilian psychologists and social workers are not competitive with rates provided in the civilian market or the VA system, which increases the “likelihood that DoD will lose civilian providers to the VA system as they learn that they can earn substantially higher salaries for performing essentially the same job” (Department of Defense Task Force on Mental Health, 2007a, p. 48). MTF commanders do not have the authority to fill critical gaps by offering competitive recruitment packages to civilians.

Variations in Availability of Services Among Civilian TRICARE Providers. As with the MTFs, access to mental health services varies within the network of civilian TRICARE providers. Many TRICARE providers are no longer accepting new patients. In one instance, a mental health professional reportedly called over 100 mental health providers within the TRICARE network and found only three who would accept new TRICARE referrals (Department of Defense Task Force on Mental Health, 2007a).

Two recent GAO reports bear directly on access to care from TRICARE civilian providers.

The first, published in 2003, concluded that DoD’s ability to oversee the civilian-provider network was hindered by using measures that likely underestimate the number of providers needed in geographical areas. In addition, DoD does not systematically collect and analyze beneficiary complaints that might identify inadequacies in the civilian provider network (GAO, 2003).

The second, more recent, GAO report (GAO, 2007a) surveyed reservists about their overall satisfaction with TRICARE compared with private-sector insurance coverage. Only 12 percent of reservists reported that the availability of providers and specialists was superior in TRICARE, and 50 percent stated that availability was greater in the private sector (GAO, 2007a).

Factors Limiting Availability of Civilian Mental Health Providers. Several factors likely account for limited availability of TRICARE civilian network and nonnetwork providers. About 20 percent of surveyed providers who would not accept TRICARE patients cited concerns about the adequacy of TRICARE’s reimbursement rates, which are tied to Medicare rates (GAO, 2006a). The TRICARE Management Activity (TMA) has the authority to adjust reimbursement amounts in locales in which reimbursement rates appear to negatively affect beneficiary access to care. However, as of August 2006, TMA had approved only 15 waivers, and the waivers have not been used to increase the availability of any mental health services (GAO, 2006a).

In addition, 15 percent of network providers cited perceived administrative hassles as the reason they were not accepting new TRICARE patients (GAO, 2006a). Although TRICARE has improved its claims processing, early problems with the system may have left a lasting negative impression on some providers. Also, the application process for becoming a TRICARE network provider is reportedly cumbersome. Outreach efforts are under way to educate health care personnel about the system improvements (GAO, 2006a).

Other factors limiting access to providers cannot be attributed to TRICARE. For example, some providers' practices cannot accommodate additional patients, regardless of health insurance payments. Problems in provider capacity are most pronounced in geographically remote areas. TRICARE has designated two bonus payment systems to motivate providers to practice in such areas.⁴ However, more-robust efforts may be necessary to ensure that military personnel, their families, and veterans receive appropriate and timely care.

The Department of Veterans Affairs. The mission of the Department of Veterans Affairs is to serve America's veterans and their families by promoting the health, welfare, and dignity of all veterans in recognition of their service to this nation. The VA is the principal agency charged to provide veterans with medical care, benefits, social support, and lasting memorials.

The VA is made up of a central office and three major organizations: the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA), and the National Cemetery Administration (NCA). The Veterans Health Administration administers and operates the VA's health care system.

VA Health Care System. The VA operates the largest integrated health care system in the United States. In 2006, the VA health care system had 7.9 million enrollees (Department of Veterans Affairs, 2007e). The VA health care system is organized into 21 Veterans Integrated Service Networks (VISNs), which provide a full spectrum of comprehensive health services, including primary and specialty care, as well as a comprehensive pharmaceutical benefits program and other ancillary services. These semi-autonomous Service Networks are charged with developing cost-effective health care programs that are responsive to both the national mission of the VA and to local circumstances and trends in health care service delivery.

There are currently 877 VA in-patient medical centers and outpatient clinics (Department of Veterans Affairs, 2007e). The VA also maintains partnerships with numerous academic institutions so that it can enhance quality of care and promote education, training, and research. The majority of services provided by the VA are delivered in facilities owned and maintained by the VA and staffed by VA and contract employees. The balance, referred to as *purchased services*, is paid for on a fee-for-service basis.

What Structural Factors Impede or Facilitate Access to Mental Health Services Within the VA?

Eligibility and Priorities for VA Health Services Guide Access. The Veterans' Health Care Eligibility Reform Act of 1996 expanded the types of services available to

⁴ The Department of Health and Human Services designates both the Health Professional Shortage Areas and the Physician Scarcity Areas. The former are deemed to have a shortage of primary care, dental, or mental health providers. Physician Scarcity Area designations are based on calculations of ratios of active providers of primary and specialty care to Medicare beneficiaries in every county in the United States.

VA patients and extended coverage, through a priority-based enrollment system, to veterans with at least 24 months of continuous active duty military service and an “other-than-dishonorable” discharge (Department of Veterans Affairs, 2007l). Although the option of coverage is extended to all veterans, veterans are not entitled to VA health benefits by statute. Instead, the VA system relies on a discretionary budget.

Effective in FY1999, veterans were prioritized for enrollment according to eight tiers: those with Service-connected disabilities (priority levels 1 to 3); prisoners of war and recipients of the Purple Heart (priority 3); veterans with catastrophic disabilities unrelated to service (priority 4); low-income veterans (priority 5); veterans who meet specific criteria, such as having served in the first Gulf War (priority 6); and higher-income veterans who do not qualify for other priority groups (priorities 7 and 8). Enrollment is currently suspended for priority group 8 to ensure that the VA can meet the needs of its higher-priority enrollees (Department of Veterans Affairs, 2007k). Co-payments vary by the veteran’s priority level; veterans in priority levels 1 through 6 receive care without co-payments. The financial threshold for *low income* increases slightly each year and varies by the number of dependents. Co-payment rates for inpatient and ambulatory care services for veterans in higher-income priority levels 7 and 8 are comparable to those required by Medicare.

The Veterans’ Health Care Eligibility Reform Act of 1996 broadened the VA’s contracting authority to enable the department to enter into contracts with non-VA health care providers. This new flexibility allowed the VA to open hundreds of Community-Based Outpatient Clinics located in areas that are far from a medical center and have a high concentration of veterans. These Outpatient Clinics may improve veterans’ access to care, including preventive care that can potentially alleviate conditions before they require more-specialized and more-expensive treatment. The VA also provides specialized services to address the unique needs of military veterans, including treatment for blindness, spinal-cord injury, traumatic brain injury, post-traumatic stress disorder, and other mental disorders.

Access to VA Care for Combat Veterans of OEF/OIF. All veterans with combat service after November 11, 1998, and who were discharged under other-than-dishonorable conditions, are eligible to receive cost-free health care through the VA for five years after separation from active military service, regardless of whether they have sustained Service-connected injuries or illness. During this five-year eligibility period, veterans have a level 6 priority rating, unless they meet criteria that qualify them for a higher priority (Department of Veterans Affairs, 2007k).

Servicemembers are not required to enroll with the VA to receive services during the initial five-year period. However, veterans who enroll with the VA during this time retain eligibility for VA health services after the five years have elapsed. At that time, veterans who have not received a disability rating will switch to level 7 or 8, depending on income (Department of Veterans Affairs, 2007l). These veterans will be required to make applicable co-payments for medical care services received through the VA.

The current conflicts in Afghanistan and Iraq have increased tremendously the demand for mental health services across the VA. According to recent estimates, approximately 18 percent of OEF/OIF veterans seeking care through the VA were receiving care for PTSD (Department of Veterans Affairs, 2007e). In one study, about 184,500 sought care from a VA Medical Center between October 2001 (the start of OEF) and May 2006 (Department of Veterans Affairs, 2006b). Of these, about 29,000 had a probable diagnosis of PTSD.

Specialized Mental Health Services Are Available Within the VA for Post-Traumatic Stress Disorder (PTSD). Historically, the VA has adapted its programs and treatment approaches to meet the changing mental health needs of returning troops. Currently, the VA offers a mix of onsite and offsite programs for evaluating and treating PTSD. The VA's approach promotes early recognition of individuals who meet formal criteria for diagnosis, as well as those with subthreshold symptoms. The goal is to make evidence-based treatments available early to prevent chronic symptoms and lasting impairment (Department of Veterans Affairs, 2007c). According to the Veterans Affairs' National Center for PTSD Web site (Department of Veterans Affairs, 2007d), each VA Medical Center offers some type of specialized expertise with PTSD, resulting in a network of more than 200 specialized treatment programs and trauma centers. In addition, many VA Medical Centers offer walk-in clinics to provide immediate care (Cross, 2006). Tables 7.3 and 7.4 provide an overview of the specialized PTSD outpatient and inpatient programs within the VA, respectively.

In addition to the national inpatient and outpatient treatment programs, some VA Medical Centers run their own local specialized PTSD programs.

Table 7.3
VA Outpatient PTSD Treatment Programs

Outpatient Treatment Programs (Number of Programs)	Description of Service
PTSD Clinical Team (152)	Group and one-on-one evaluation, education, counseling, and psychotherapy.
Substance Use and PTSD Team (10)	Education, evaluation, and counseling, with a focus on veterans with both substance abuse and PTSD.
Women's Stress Disorder Treatment Team/Military Sexual Trauma Team (17)	Individual evaluation, counseling, and psychotherapy for women. Group counseling and psychotherapy for women. Mostly women; may include a small number of men separate from women.
PTSD Day Hospital (11)	Organized in an outpatient setting. Provides individual treatment. Patient comes in daily or several times a week for 4 to 8 hours each visit. Social, recreational, and vocational activities and counseling.

SOURCE: GAO, *Posttraumatic Stress Disorder: DoD Needs to Identify the Factors Its Providers Use to Make Mental Health Evaluation Referrals for Service Members*, Washington, D.C.: GAO-06-397, 2006b.

Table 7.4
VA Inpatient PTSD Treatment Programs

Inpatient Treatment Programs (Number of Programs)	Description of Service
Evaluation and Brief Treatment PTSD Unit (4)	Provides inpatient evaluation, education, and psychotherapy for PTSD. Duration of service: 14 to 28 days.
PTSD Domiciliary (8)	Residential program providing integrated rehabilitative and restorative care with the goal of helping veterans with PTSD achieve and maintain the highest level of functioning and independence possible. Aim is to facilitate transition to outpatient mental health care. Duration of service: about 85 days.
PTSD Residential Rehabilitation Program (14)	Residential service providing evaluation, education, counseling, and case management that focuses on helping the survivor resume a productive involvement in community life. Duration of service: 28 to 90 days.
Specialized Inpatient PTSD Unit (5)	Provide trauma-focused evaluation, education, and counseling for substance use and PTSD psychotherapy. Duration of service: 28 to 90 days.
Women's Trauma Recovery Program (2)	Residential service with an emphasis on interpersonal skills for veterans with PTSD and a focus on war-zone-related stress, as well as military sexual trauma. Duration of service: up to 60 days.

SOURCE: GAO, *Posttraumatic Stress Disorder: DoD Needs to Identify the Factors Its Providers Use to Make Mental Health Evaluation Referrals for Service Members*, Washington, D.C.: GAO-06-397, 2006b.

The VA's National Center for PTSD was created in 1989 to address the needs of veterans with military-related post-traumatic stress disorder. The Center's mission is to advance the clinical care and social welfare of America's veterans through research, education, and training in the science, diagnosis, and treatment of PTSD and stress-related disorders (Department of Veterans Affairs, 2007c). The Center, which is headquartered in White River Junction, VT, currently consists of seven VA academic centers of excellence across the United States.

The National Center is not a clinical program. It is organized with the goal of facilitating rapid translation of science into practice, ensuring that the latest research findings inform clinical care, and with translating of practice into science, ensuring that questions raised by clinical challenges are addressed using rigorous experimental protocols (Department of Veterans Affairs, 2007c).

Availability of Services for Major Depression Is Predominantly Integrated into Primary Care. Major depression is the second most prevalent illness in the Veterans Administration. Approximately 7 percent of VA patients meet criteria for major depression (Yu et al., 2003), a level of prevalence consistent with that found in the general

U.S. population. Primary care is an attractive environment for treating depressed VA patients (Katon and Schulberg, 1992). Most veterans treated for depression in the VA are treated in primary care settings (Department of Veterans Affairs, 2007g), with only a quarter (26.4 percent) who are seen in primary care needing referral to a specialty mental health setting (Kilbourne et al., 2006). In addition, offering depression services for veterans in a primary care setting may help alleviate the negative attitudes about seeking care in a designated mental health environment. With these considerations in mind, we focus our discussion on treating depression in the primary care setting.

Appropriate treatment for depression begins with effective screening. Depression may go unrecognized in one-third to one-half of primary care patients (Kirkclady and Tynes, 2006). Acknowledging this gap, the VA mandated annual depression screening in all VA primary care clinics in 1998. From 1997 to 2001, the frequency with which depression was diagnosed, as well as the percentage of the primary care population who received a diagnosis of depression, increased. However, the average number of primary care visits for depression treatment did not increase, falling below recommended guidelines for depression (Kirchner, Curran, and Aikens, 2004). This pattern may in part reflect increased demand in recent years from veterans serving both before and during the Gulf War era, potentially straining capacity and, in turn, reducing service intensity (Rosenheck and Fontana, 2007).

Despite these challenges, the VA has been working on innovative ways to improve depression treatment for veterans in primary care. One such strategy is the development of the Behavioral Health Laboratory to help assess patients potentially in need of mental health care (Oslin et al., 2006). The Behavioral Health Laboratory, which has been implemented in many VA primary care clinics, performs specific tests when ordered by primary care providers, interprets the results, and assists in clinical decisionmaking. Another recent advance in depression treatment is the depression prognosis index, which demonstrated notable success in predicting outcomes at a six-month interval, helping clinicians and researchers better understand various factors that affect depression-treatment outcomes (Oslin et al., 2006).

The collaborative care (or chronic care) model has also recently emerged as a potentially effective approach to providing care for depression in primary care. The model involves integrating a number of quality-improvement strategies and tools, including patient self-management support; clinician education and decision support; care management; and interactions between primary care and mental health specialists (Wagner, Austin, and Von Korff, 1996). Treatment options may include medication therapy, cognitive-behavioral therapy; patient education; patient support; and intervention of a mental health specialist. The collaborative care model is well documented as a cost-effective approach to improving depression-treatment outcomes in a primary care setting; however, the model has not yet been implemented nationally across any large health care system, including the VA (Fortney et al., 2007).

The VA, however, has launched a program that builds on the collaborative care model. “Translating Initiatives for Depression into Effective Solutions” is an evidence-based program for improving depression care, implemented in seven VA primary care clinics in five states. The program involves collaboration between primary care providers and mental health specialists, with support from a depression care manager. In interviews, VA administrators and providers have mentioned several other experimental programs aimed at integrating mental health services into primary care.

While the VA is working to improve mental health services in the promising environment of primary care clinics, differences in the organization of VA treatment facilities may present challenges for implementing systemwide approaches to improvement (Kilbourne et al., 2006). Additionally, primary care clinics within the VA may need to customize their respective treatment models according to available resources and the needs of the veterans they serve.

Challenges Related to VA Health Care Access. In September 2004, the Government Accountability Office issued a report assessing whether the VA is prepared to meet increased demand for PTSD treatment services among servicemembers who have served in Afghanistan and Iraq (Bascetta, 2004). The GAO concluded that the VA could not assess capacity for expanded treatment services because it did not know how many veterans were currently receiving PTSD services.

Competing Service Eras. The increased demand for mental health and PTSD services is not limited to veterans who have served (or are serving) in current conflicts. It also reflects the needs of veterans from previous wars (George, 2006).

The increase in use of VA mental health services among veterans of earlier wars has been 5 times greater than that observed among Gulf-era veterans, especially among Vietnam-era veterans diagnosed with PTSD (Rosenheck and Fontana, 2007). The exact reasons for this disparity remain unclear. One possibility may be related to changes in VA policy that allowed disability for diabetes among Vietnam veterans, resulting in a substantial increase in the number of veterans eligible for VA care, many of whom may also have mental health issues (Rosenheck and Fontana, 2007). Other reasons could be related to mental stress factors associated with aging and retirement, and decreased access to mental health services in the general population (Rosenheck and Fontana, 2007). Although the patient load has been increasing, the number of clinic visits per veteran is decreasing, dropping by about 38 percent from 1997 to 2005. Fewer visits may mean poorer continuity of care and increased risk of veterans’ prematurely dropping out of treatment. Reduction in visits may also reduce the likelihood that evidence-based psychotherapies are delivered, because evidence-based therapy requires a certain frequency and length of treatment.

To explore access issues in greater detail, the VA reportedly is in the process of instituting a system redesign collaborative in which mental health providers throughout the system are going to work together to evaluate, among other issues, access and

continuity of care—a large-scale initiative that will take place over the next year, with a conference planned for early in 2008, according to a stakeholder interview.

Vet Center Services Available to All Combat Veterans in Many Communities. Vet Centers play a critical role in providing mental health services for those whose injuries do not qualify them for high-priority access to VA care. Any veteran who has served in a war zone is eligible for care at a Vet Center. The Centers, often located in storefront settings, offer individual and group counseling; marital and family counseling; bereavement counseling for family members; medical referrals; assistance in applying for VA benefits; employment counseling; military sexual-trauma counseling; alcohol and drug abuse assessments; outreach; and community education. Services are offered at no cost to eligible veterans and their families, and there is no limit on the duration or frequency of services.

There are currently 209 Vet Centers located in all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands; the VA plans to expand the number of Vet Centers to 232 by 2009. Veterans may contact Vet Center staff during regular business hours at a toll-free phone number, and some Vet Centers have extended hours to facilitate counseling for those who work during the day.

Vet Center staff typically consist of four or five members, including a team leader who supervises an interdisciplinary team of social workers, psychologists, nurses, and/or paraprofessional counselors. Of Vet Center counselors and team leaders, 73 percent are veterans themselves and have experienced readjustment issues firsthand. According to a stakeholder interview, each counselor receives standardized training in cognitive-behavioral therapy and exposure therapy (for a description of the therapies, see Appendix 7.C), suicide prevention, and TBI recognition and assessment. Counselors do not offer inpatient care or provide medical prescriptions (Democratic staff of the House Committee on Veterans Affairs, 2006). If a counselor detects a serious mental or physical health problem, the veteran will be referred to a VA hospital for more intensive treatment.

A veteran seeking care at a Vet Center goes through an intensive assessment protocol that may take place over three to five sessions. Following assessment, the counselor develops a treatment plan, which may include some combination of group, individual, marital, or family therapy. The treatment plan is periodically revised as treatment progresses. According to a stakeholder interview, to protect a veteran's confidentiality, Vet Center records are separate from VA administrative benefits and medical records.

About 250,600 OEF/OIF veterans have received some form of assistance from Vet Center staff through May 2007; 51,734 of these received care within the Centers, and 198,878 were contacted by outreach specialists (Frame, 2007).

VA data also indicate that 5,339 OEF/OIF veterans who have been diagnosed as having PTSD have been treated exclusively through Vet Centers (Democratic staff of the House Committee on Veterans Affairs, 2006; Kang, 2006). An additional 3,764 OEF/OIF veterans with a diagnostic code for PTSD were seen at both a VA medi-

cal facility and a Vet Center (Democratic staff of the House Committee on Veterans Affairs, 2006). Vet Centers also provided care to 2,290 OEF/OIF veterans who had PTSD symptoms that did not warrant a clinical diagnosis of PTSD; these individuals' conditions were identified by Vet Center staff as subthreshold PTSD (Kang, 2006).

In 2006, the House Committee on Veterans' Affairs surveyed 60 of the 207 Vet Centers from all 50 states, Puerto Rico, the Virgin Islands, the District of Columbia, and Guam to review their capacity for meeting the mental health needs of OEF/OIF veterans (Democratic staff of the House Committee on Veterans Affairs, 2006). All of the Vet Centers reported an increase in outreach and services to these veterans in the past year (Democratic staff of the House Committee on Veterans Affairs, 2006). Half of the Centers reported that the increase had resulted in higher demand for their services and had potentially hampered their ability to treat the existing patrons; 30 percent explicitly stated that they need more staff. One in four Centers reported that they were taking actions to manage the increasing workload (e.g., shifting veterans to group therapy when individual therapy is more appropriate, limiting access to family therapy, establishing wait lists). However, some Centers stated that they were adequately staffed and running efficiently.

Transitions and Coordination Across Systems Pose Challenges to Access and Continuity of Care

For American service men and women, frequent changes in duty stations necessitate changes in health care providers. In addition, when individuals separate from military service or when reservists deactivate, they often experience a change in health-insurance coverage and providers. These transitions pose significant challenges to the continuity of mental health care, particularly care initiated within one facility or system but to be continued by another. Below, we describe the systems in place for sharing medical records and helping patients to transition between providers.

Continuity of Care Between Military Treatment Facilities. Military servicemembers change service stations frequently. As the DoD Mental Health Task Force notes, these changes can occur as frequently as once every year or two. Servicemembers receiving treatment for mental health problems should continue their care at their new service station.

Transfer of Medical Records. The Armed Forces Health Longitudinal Technology Application (AHLTA) is DoD's electronic health record system. The system is intended to provide "seamless visibility" of health care information across the DoD medical system (McKaughan, 2007). However, although ambulatory visits to Military Treatment Facilities are captured in the system, the system lacks a specific electronic module for mental health treatment that could record psychiatric evaluations, histories, or detailed treatment notes (Department of Defense Task Force on Mental Health, 2007a). Consequently, a new mental health provider cannot electronically access specific information on a patient's diagnostic and treatment history. New providers may

need to rely on paper records, or they may need to repeat psychiatric evaluations and retake patient histories. Depending on the availability and quality of paper records, they also risk beginning treatments that have already proven ineffective for the patient. DoD has committed to developing an AHLTA mental health module by May 2008 (Department of Defense Task Force on Mental Health, 2007b).

Patient Handoffs. With exception of the Air Force, none of the services provides written instructions that guide the transfer of patients across installations (DoD Task Force on Mental Health, 2007a). Consequently, many relocating servicemembers must navigate the new installation's patient care system on their own. Some will fail to reinitiate treatment. For those who do begin treatment, clinicians at the new installation may lack access to complete historical mental health treatment records. The Mental Health Task Force recommended that each military Service issue policies outlining the responsibilities of mental health professionals at the losing and gaining installations so that care can be properly handed off from one mental health provider to another. DoD has said that such policies will be reviewed and clarified (Department of Defense Task Force on Mental Health, 2007b).

Continuity of Care Between Military Treatment Facilities and Other DoD-Sponsored Counseling Programs. Some servicemembers will first seek mental health care from other DoD-sponsored counseling programs, which include OneSource-referred counselors and Service branch counseling programs, such as Marine Corps Community Services. As noted earlier, they do so in part because these programs offer increased confidentiality. However, servicemembers may need to transfer treatment from one provider to another for a number of reasons—for example, a severity of illness that warrants care in an MTF or, as with OneSource, the capitation of treatment to only six free sessions. It is important that continuity of care be maintained across these transitions.

Community-based providers to whom OneSource may refer military servicemembers pose special challenges for continuity. They have no formal communication pathways or shared medical-record systems with the MTF or with base counseling programs. However, they must be sufficiently familiar with MTFs and base counseling programs to make appropriate referrals. OneSource offers training to address this need, including information on military culture and on PTSD and TBI, so that counselors can refer servicemembers as needed to the local MTF, to the TRICARE civilian network, or to other civilian providers. Provider-to-provider handoff is one way to ensure continuity of care under these conditions. However, there is no publicly available information on how often or in what fashion those handoffs take place.

Base Counseling Services. As noted above, base counseling records are confidential. In addition, DoD's medical departments and counseling centers have distinct and separate standard operating procedures and use separate forms and databases to track workload. The base programs certainly have the capability to refer patients to the MTF.

However, the extent to which the MTFs and counseling centers otherwise interact or coordinate care reportedly varies from extensive to highly infrequent (Russell, 2007).

Continuity of Care Between Military Treatment Facilities and the VA. Whether temporary or permanent, separation from military service presents another challenge to continuity of care. Individuals who separate from military service will ideally continue Service-connected mental health care with the VA. Reserve Component members who return to their communities may also require continued care. Some service-members receive simultaneous care from both the VA and DoD. DoD and the VA both use electronic medical record systems, but the VA system—the Veterans' Health Information Systems and Technology Architecture—and the DoD system (AHLTA) are not compatible for sharing electronic records.

Efforts are under way to address the compatibility and electronic transmission of patient health information between these systems; however, sharing of patient records across the systems still presents a challenge for continuity of care. This is a two-way challenge, from DoD to the VA and from the VA to DoD. For example, when a reservist receiving treatment through the VA is called back to active duty, the treating VA clinician has limited communication tools to enable a handoff for evaluating deployability or continued care in DoD.

Patient Handoffs. Transition to post-military, civilian life requires navigating a new health care system, an experience that leaves many individuals resigned to not seeking care. The failure to continue mental health care in the VA was confirmed by the only study that examined the flow of mental health patients from DoD to VA systems of care. The study found that only 52 percent of discharged veterans with schizophrenia, bipolar, or major affective disorders made contact with the VA health care system (Mojtabi et al., 2003). The Mental Health Task Force recommended provider-to-provider handoffs to guide transition to civilian care (Department of Defense Task Force on Mental Health, 2007b). May 2008 is the target date for DoD to draft guidelines for transferring mental health patients to VA, TRICARE, and other post-DoD providers.

The VA has undertaken a number of community-outreach efforts to ensure that servicemembers with mental health problems or other Service-connected ailments resume or initiate treatment in the VA health care system. From October 1, 2000, through May 31, 2006, the VA provided approximately 36,000 briefings on available health care services to nearly 1.4 million active duty and Reserve Component servicemembers and their families. A VA-sponsored Web site (Department of Veterans Affairs, 2007l) provides information on VA health services aimed specifically at OEF/OIF veterans. Other promotional programs include wallet-sized cards with VA telephone numbers and a monthly video magazine called the *American Veteran* (GAO, 2006c).

Confidentiality. The confidentiality of mental health care within the VA presents a special challenge for exchanging medical records with DoD. Currently, the

VA requires the consent of Reserve Component servicemembers before their medical records can be transferred to DoD. The Mental Health Task Force recommended that DoD and the VA establish formal agreements for medical records-sharing, but the VA is concerned about maintaining confidentiality (Department of Defense Task Force on Mental Health, 2007a). The VA and DoD are currently discussing how to resolve this issue (Cross, 2007).

Continuity of Care Between Community Treatment Centers and VA/DoD. Some veterans, and Reserve Component servicemembers seek care from non-VA or non-DoD facilities, such as community mental health centers or other private-practice providers, perhaps because they do not live near a VA facility, are unfamiliar or uncomfortable with VA services, or value the confidentiality that using community and private resources provides. Some military servicemembers pay for community-provided treatment out of pocket to avoid the stigma associated with receiving mental health care on base. Active outreach from DoD and the VA could help military servicemembers become more familiar with their own systems and services. However, the negative attitudes within the military culture associated with having and treating a mental disorder are a major barrier to care that must be addressed systemwide (Department of Defense Task Force on Mental Health, 2007a).

Seamless Transitions: DoD to the VA. A major challenge faced by wounded servicemembers is transitioning their health care from DoD's Military Treatment Facilities to the VA's health care system. The VA has made some administrative changes to smooth the transition. To reduce the time between separation from the military and access to VA benefits, servicemembers may now enroll for VA health care and file for benefits before leaving active duty. OEF/OIF servicemembers who are not seriously injured may begin the disability-compensation application process 180 days before separation, through the Benefits Delivery at Discharge Program (Department of Veterans Affairs, 2007f). Other changes include creation of a special office (Seamless Transition Office) to help patients transition between military and VA health care facilities (U.S. Department of the Army, Office of the Surgeon General, *MHAT-II Report*, 2005).

More-comprehensive and more-coordinated care and services can also be achieved through case management. Recognizing this need, the VA Task Force on Returning Global War on Terror Heroes recommended a system of co-management and case management for active duty servicemembers who receive care in both DoD and VA facilities by suggesting that each of these patients be assigned to a primary case manager and that formal agreements on how these patients will be co-managed be instituted (Department of Veterans Affairs, 2007i).

As of December 2007, full-time benefit counselors and social workers were stationed at seven major MTFs. These case managers work with servicemembers and their families to facilitate health care coordination and discharge planning as servicemembers transition from military to VA care (Brown, 2005). In addition, the four VA Level I Polytrauma Centers assign one social worker to every six patients to serve as their

case manager. On October 31, 2007, following the recommendation of the President's Commission on the Care of America's Returning Wounded Warriors (referred to hereinafter as PCCWW) and the Wounded, Ill, and Injured Senior Oversight Committee (referred to hereinafter as the Senior Oversight Committee), DoD and the VA agreed to establish a joint Recovery Coordinator Program (GAO, 2007b). These federal recovery coordinators are intended to be the patient's and family's single point of contact for all care (Bascetta, 2007).

A final transition issue concerns timeliness and consistency of disability decisions. DoD's evaluation is used to determine medical fitness for duty and DoD disability compensation, and the VA's evaluation is used to award VA disability compensation and access to VA health care. In November 2007, based on the recommendation of the PCCWW and the Senior Oversight Committee, DoD and the VA agreed to develop and pilot a joint disability-evaluation system, which will enable individuals to know their eligibility for VA compensation before they return home (Bascetta, 2007). The joint evaluation system is likely to include a single, comprehensive medical examination, a single disability rating established by the VA, and a DoD-level evaluation board for adjudicating servicemembers' fitness for duty.

State and Local Community Initiatives Aim to Fill Gaps in Access

In addition to mental health services and programs offered through DoD and VA systems, returning military servicemembers may receive mental health services through local state or community-based resources. Above, we note the challenges in coordinating across these services and DoD or the VA; however, these initiatives may offer an additional resource for servicemembers and veterans who either are not eligible or do not have access to government-sponsored programs. The availability and characteristics of these local initiatives are varied, and many may offer innovative approaches for increasing access to mental health care for returning servicemembers and veterans. For example, through some programs, servicemembers may access online lists of providers offering counseling services to returning military servicemembers and receive free counseling and psychotherapy from licensed mental health care providers. A few states have developed programs that integrate all the state's mental health resources so that military servicemembers can easily determine which services are available and appropriate. University counseling centers offer free services for student veterans. Faith-based organizations provide counseling and retreat programs to returning servicemembers to facilitate the post-deployment transition. We note that many of these programs lack rigorous evaluation or information on whether they offer evidence-based treatment services. Concerns about quality of mental health care, including the care provided within these programs, are discussed in the next section, *Quality of Mental Health Care*.

These initiatives may increase access to mental health care for servicemembers and their families. But before these individuals can access these services, they must be aware of them. Thus, outreach is essential. State-based programs that integrate services

and provide comprehensive lists of available resources may help servicemembers and their families locate appropriate services.

Some of the state and local programs are described in Appendix 7.E. Program availability depends on geographical region.

In the following subsection, we describe other personal, social, and cultural factors that may impede use of the array of services described above.

What Social, Cultural, and Personal Factors Impede or Facilitate Servicemembers' and Veterans' Access to Mental Health Care?

In this subsection, we examine social, cultural, and personal factors that impede or facilitate access to mental health care for servicemembers. The Department of Defense Task Force on Mental Health (2007) identified the stigma of mental illness as a significant issue preventing servicemembers from seeking help for mental health problems and made recommendations to dispel stigma. Below, we discuss the variety of potential influences and meanings of the term *stigma*, then we review specific attitudinal barriers to mental health use for military servicemembers.

Definitional Issues Related to the Term *Stigma*. The term *stigma* is referred to in multiple places as it relates to care seeking behaviors in mental health, and in fact it is referenced and discussed in the DoD Task Force on Mental Health. To more fully appreciate these issues, we first discuss the definition of this term in order to draw distinctions among the various subtypes of stigma. *Stigma* is a term that can refer to various types of social, cultural, and personal factors affecting access to mental health care. In the social science literature, it is defined as a “negative and erroneous attitude about a person, a prejudice, or negative stereotype” (Corrigan and Penn, 1999, p. 765). When negative attitudes about those who experience mental health conditions or who receive mental health care are widely held by military servicemembers, these pose a significant hurdle to effective mental health assessment and treatment. In the discussion below, we consider the general consequences of negative attitudes associated with mental health conditions, the profound presence of negative attitudes associated with mental health problems in military culture, specific types of attitudes and concerns that serve as barriers to mental health care, and DoD recommendations to mitigate the effects of stigma.

General Consequences of Negative Attitudes. Negative attitudes associated with mental health conditions appear at societal, individual, and institutional levels. *Societal* or *public stigma* refers to public misperceptions and reactions toward individuals with emotional or psychological problems (Corrigan and Watson, 2002; Sammons, 2005). *Individual stigma* occurs when individuals internalize the general public's negative perception of those with mental disorders (Corrigan and Watson, 2002). *Institutional-level stigma* occurs when institutional policies or practices regarding mental health issues

unreasonably limit an individual's opportunities (Sammons, 2005). Efforts to mitigate stigma need to address all three types.

The public's negative perceptions of those with mental disorders include the belief that these individuals are more likely to be violent. Perceptions such as this often translate into social isolation for those suffering mental health problems (Link et al., 1999). People say they would be less willing to socialize or work closely with someone who is "depressed" rather than simply "troubled" (Link et al., 1999). Perhaps in part to avoid this kind of "mental illness" labeling, individuals subject to public stigma are less likely to seek treatment for a mental health condition (Corrigan, 2004) and also less likely to adhere to a treatment plan (Kessler et al., 2001).

When individuals internalize these negative attitudes, their perception of self-worth is diminished and confidence in their future prospects declines (Corrigan, 2004). These individuals often consider themselves to be less-valuable members of society (Link, 1982; Link and Phelan, 2001); the resulting shame degrades their quality of life (Corrigan, 2004) and makes them less likely to seek treatment (Sirey et al., 2001).

Institutional stigma includes public and private policies that restrict opportunities for those with mental health conditions, such as laws that restrict their right to vote or to participate in juries (Corrigan, 2004). However, institutional stigma also includes policies that do not deliberately discriminate but still have negative consequences for those with mental disorders (Corrigan, Markowitz, and Watson, 2004)—for example, less-generous insurance benefits for treatment of mental health conditions, and the small amount of funds allocated for research on treatment for psychiatric disorders relative to other conditions, such as heart disease or cancer (Link and Phelan, 2001).

Military Culture and Attitudes That Inhibit Access to Mental Health Care. To develop and maintain an effective fighting force, military culture must promote individual strength and selfless devotion to both nation and fellow comrades in arms. This culture can at times prove detrimental to the mental and physical health needs of individual service men and women. In particular, there are three aspects of this culture that pose significant barriers to seeking mental health care: attitudes and beliefs about mental health and treatment-seeking, unit cohesion, and unit dynamics.

Attitudes and Beliefs. Throughout their military careers, servicemembers develop a set of values and attitudes that are essential for maintaining force readiness and strength:

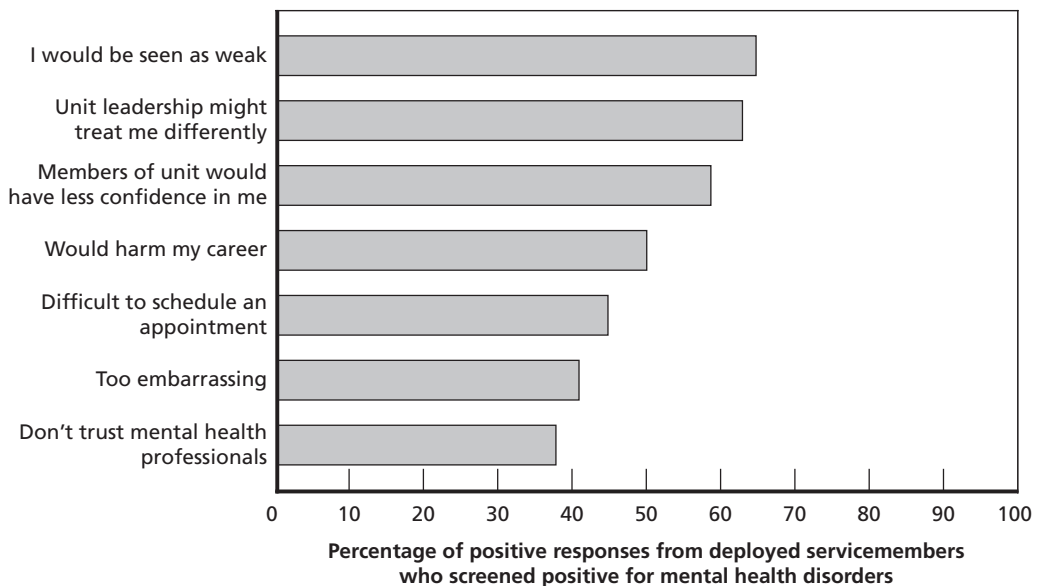
- Every war fighter has a culture of toughness, independence, not needing help, not being weak, and expecting to be able to master any and every stress without problems. There is a huge barrier to acknowledge even to themselves that there is a problem (stakeholder interview).
- Soldiers, sailors, airmen, and marines are encouraged to develop inner strength and self-reliance. They take pride in their toughness and ability to "shake off" ailments or injuries. One former battalion surgeon noted that his marines did not

want to seek help for any medical problems and took pride in their never having stepped foot into a battalion aid station.

Concerns about mental health problems are discordant with these attitudes and values. Many military servicemembers will attempt to “suck it up” or “tough it out,” fearing that admitting a mental health problem or seeking treatment is a sign of weakness (PCCWW, 2007a). When asked how military servicemembers cope with mental health problems, one marine stated, “You don’t want people to think you’re weird, so you bury it” (Marine Corps enlisted focus groups).

A survey from the Office of the Surgeon General’s Mental Health Advisory Team asked soldiers and marines about barriers to receiving mental health care services while in theater (U.S. Department of the Army, Office of the Surgeon General, 2003, 2005; U.S. Department of the Army, Office of the Surgeon General, Office of the Surgeon, Multinational Force–Iraq and Office of the Surgeon General, U.S. Army Medical Command, 2006a, 2006b). Figure 7.3 highlights some of their responses. Approximately half of the servicemembers who screened positive for mental disorders cited concerns about appearing weak, being treated differently by leadership, and losing the confidence of members of the unit as barriers to receiving behavioral health care. More than a third of respondents stated that mental health treatment-seeking would have a harmful effect on his or her career.

Figure 7.3
Perceived Barriers of Deployed Servicemembers



SOURCE: Hoge et al., 2004.

RAND MG720-7.3

The perceived benefit of mental health services may also influence the decision to seek treatment upon returning from deployment. One-quarter of military servicemembers who screened positive for a mental disorder said that they did not believe mental health treatments were effective and cited this belief as a reason not to seek services (Hoge et al., 2004). Some focus-group participants expressed concerns that mental health care providers push medications when counseling might be the more appropriate, desirable, or effective treatment. One marine suggested that, “If people knew that someone was going to listen to their problems and not just push medication, more people would go [get treatment]” (Marine Corps enlisted focus groups). This attitude is not unique to the military culture. Among a sample of primary care patients with depressive symptoms, the majority of those who wanted treatment preferred counseling over medication (Dwight-Johnson et al., 2000).

Unit Cohesion. Military servicemembers develop a close bond with their comrades. This bond is referred to as *unit cohesion* (National Defense Research Institute, 1993). Through arduous and stressful training, military servicemembers learn to rely on each other for support and encouragement. During deployment, they live and fight together and confront life and death scenarios as a team. They build a culture of interdependence.

Unit cohesion affects morale and psychological resilience. During combat, support and encouragement from other members of the unit provide strength and motivation. Most consider unit cohesion to be the most important protective factor in preventing psychiatric breakdown (Helmus and Glenn, 2005). After the Lebanon War, researchers found that social isolation was the best predictor of combat-stress reactions in Israeli soldiers (Solomon, Mikulincer, and Hobfoll, 1986). Others have argued that, “When morale is high, stress casualties are low, and vice versa” (Labuc, 1991).

Military servicemembers frequently resist being separated from their unit and their buddies. Many wounded during combat operations experience a sense of shame over having left their comrades. News reports of the 379th Expeditionary Medical Group stationed in Iraq quote the unit’s Master Sergeant Paul Martin: “The patients that come through here are true warriors. More than ninety-nine percent of them feel guilty about being here—they just want to get better and get back to their units despite facing the horrors of war” (Foster, 2007).

This reluctance to leave the unit may apply equally to garrison training activities. Units that return from deployment often begin preparing immediately for their next deployment. Such preparations involve a very demanding training tempo. Outpatient services in DoD behavioral health clinics are available only during standard working hours (i.e., 0730–1630 or 0800–1700) (Johnson et al., 2007); thus, to receive treatment, servicemembers must take time away from training. Many are reluctant to do so. Consequently, the cohesion that protects military servicemembers from psychological injury may also keep them from seeking mental health services and treatment when injuries do occur. As previously noted, more than half of returning soldiers and

marines identified in screening as having mental health problems cited “members of my unit might have less confidence in me” as a reason for not seeking mental health care. Fifty percent or more also said it was difficult to take time off from work (Hoge et al., 2004).

The unit command climate probably also contributes to the stigma associated with mental health problems. Several focus-group participants said that while some commanders support soldiers who seek mental health services, many do not take mental health problems seriously (RAND focus groups with servicemembers and spouses). Command support is also essential for adherence: Individuals who were referred to mental health treatment by the command were much more likely to complete a treatment regimen than those who were self-referred (Rowan and Campise, 2006).

Trust between a military servicemember and his or her mental health care provider is essential. However, recent surveys suggest that such trust is lacking. Thirty-eight percent of servicemembers who met screening criteria for mental disorders report that they did not trust mental health providers (Hoge et al., 2004). Similar results emerged from the most recent Surgeon General’s Mental Health Advisory Team survey (Hoge et al., 2004).

The separation of mental health providers from line and support units may account for this distrust. For example, the Marine Corps has historically relied on division psychiatrists to provide most evaluation and treatment services for marines. The division psychiatrist’s practice model was similar to civilian office-based consultation. Marines were consequently evaluated without an in-depth understanding of the unit and operational context. Line leaders were dissatisfied with mental health services, which were consequently underused, and a perception of weakness was associated with seeking treatment. Many marines evaluated by the division psychiatrist received recommendations for separation from service. This earned some mental health providers the nickname of “wizard” because marines sent to them would “mysteriously disappear” (Sammons, 2005). Soldiers experiencing significant distress were three times more likely to turn to a fellow soldier in their unit for help than to formal mental health assets (U.S. Department of the Army, Office of the Surgeon General, 2003).

Unit Dynamics. Specific dynamics of military units may also affect a military member’s decision to seek mental health care. One issue is accountability. Focus-group participants stated that noncommissioned officers (NCOs) are required to know the whereabouts of their soldiers and marines at all times. Observes one marine, “there is no way to keep mental health treatment confidential. The facilities are only open during the hours when you’re supposed to be at work, so you need to tell someone where you’re going” (RAND focus group of enlisted marines).

Another factor contributing to lack of confidentiality is the escorting of soldiers to mental health evaluations. Individuals with command referrals for evaluation are escorted to their clinic by another soldier. Perceptions also exist at Fort Hood that such escorts are required for even self-referred evaluations. Requiring an escort undoubtedly

increases the concerns associated with disclosing a mental health problem and proves a significant manpower drain for commanders and NCOs (Army focus group).

Receiving a mental health diagnosis may also have significant career implications, particularly in some career tracks that require higher fitness standards (e.g., Air Force pilots). Evidence of a mental health problem may also result in questioning of a military servicemember's security clearance and hinder promotion. The fitness-for-duty profiles of servicemembers receiving mental health treatment may limit their ability to carry weapons or perform other duties. Thus, the profile creates individual embarrassment and a burden to commanders, who must assign unfulfilled responsibilities to other soldiers in the unit.

Perceptions regarding malingering further dissuade individuals with true signs and symptoms of PTSD from seeking treatment. The view that many soldiers with PTSD are faking their symptoms was common in focus groups conducted with senior NCOs. One participant believed that as many as 75 percent of all individuals who said they had PTSD were faking (Army focus group).

Addressing Negative Attitudes Associated with Mental Health Conditions Within DoD. The Department of Defense recognizes that the stigma associated with mental health conditions and its consequences have an implication for access to mental health care, and it is working to reduce many of the stigma-related barriers to access. Approaches to reduce the perception of harmful consequences associated with seeking mental health treatments are summarized below.

Approaches to Combating Public Stigma: Public Education Campaigns. The DoD Task Force on Mental Health asserted that an anti-stigma public-education campaign could use evidence-based techniques to effectively disseminate factual information about mental health conditions (Department of Defense Task Force on Mental Health, 2007a). Scholars argue that the campaign should include realistic descriptions of mental health problems and emphasize the success of proven treatments (Britt, Greene-Shorridge, and Castro, 2007). For example, stigmatizing attitudes about PTSD might shift if the military community and the general public accept the notion that PTSD results from exposure to extremely stressful experiences rather than weakness of character (Britt, Greene-Shorridge, and Castro, 2007). Focusing on the effectiveness of treatments and demonstrating treatment efficacy through further research will also help to reduce public stigma (Sammons, 2005). Efforts to convey the effectiveness of treatment should further motivate individuals to seek mental health treatment.

There is some limited evidence that public-education campaigns can influence attitudes toward mental health conditions in nonmilitary populations. Two National Institute of Mental Health public-education campaigns to reduce mental health stigma provide examples of success. The Depression Awareness, Recognition, and Treatment Program (Regier et al., 1988; O'Hara, Gorman, and Wright, 1996; Rix et al., 1999) found that, at six months following the two-day training programs, participants (physicians, nurses, and mental health professionals) had increases in levels of knowledge

of depression and were satisfied with the program. Preliminary data from a qualitative evaluation of the educational brochures used in the “Real Men. Real Depression” program (Rochlen, Whilde, and Hoyer, 2005) suggest that, overall, men evaluated the material positively and indicated that these materials show promise for improving help-seeking attitudes and facilitating treatment decisions (Rochlen, McKelley, and Pituch, 2006). Additionally, national depression education and anti-stigma programs have also been shown to increase public acceptance of antidepressant medication, as reflected in public-opinion polls (Olfson et al., 2002).

Approaches to Reducing Negative Personal Attitudes. Scholars suggest that the military could reduce the feelings of shame and negative self-perceptions associated with receiving mental health care by treating individuals with the appropriate level of care and in the appropriate setting, based on the severity of the problem (Sammons, 2005). For example, individuals with minor mental health issues will be less likely to avoid seeking help if they understand that they will receive quick and effective treatment within their unit, without evacuation and separation from their buddies.

Many military health professionals argue that such programs as OSCAR, which embed mental health care providers within units, allow marines and their commanders to build rapport and trust with the mental health care providers (Britt, Greene-Shortridge, and Castro, 2007). Because military servicemembers can more comfortably disclose information to those with an understanding of military life and culture, advocates believe that embedding mental health providers within the unit is an effective strategy.

Placing mental health providers in primary care clinics may also help reduce apprehension associated with seeking mental health treatment. Advocates argue that military servicemembers have fewer apprehensions about seeing a primary care physician for psychological as well as physical problems, and the availability of mental health professionals in the primary care setting would facilitate referrals and initiation of mental health treatment. They also argue that receiving mental health care in a primary care setting does not trigger as much concern about negative consequences as receiving care in a mental health clinic.

However, others suggest that clandestinely providing treatment in primary care clinics and medicalizing normal combat-stress reactions reinforce the perceptions of shame and weakness associated with receiving mental health services (Sammons, 2005). One interviewee suggested that access options that are intended to be nonstigmatizing actually reinforce stigma because they provide alternative avenues to treatment that do not include military mental health clinicians. He believes that these programs essentially attempt to evade stigma rather than address it directly.

To reduce the perceived negative attitudes about seeking mental health treatment, the DoD Mental Health Task Force recommended establishment of training programs and further development and dissemination of clinical treatment guidelines, suggesting that DoD collaborate with both public- and private-sector experts to establish a

set of best practices and ensure that providers are adhering to them (Department of Defense Task Force on Mental Health, 2007a). If military servicemembers realize that use of mental health services is encouraged by military and civilian-sector experts, they may be less inclined to believe that mental health treatments are ineffective; consequently, they may seek services more readily.

Emphasizing treatment as a way to “return to normal” and countering perceptions that soldiers should be able to handle problems on their own have also been suggested as ways to combat the attitudes that inhibit mental health treatment-seeking (Stecker et al., 2007). Conducting unit-level interventions may be a good venue for this form of education. During these interventions, soldiers with PTSD who were successfully treated could effectively dispel myths about seeking mental health care services (Britt, Greene-Shortridge, and Castro, 2007).

Approaches to Reducing Institutional or Structural Stigma. There is a pervasive view that seeking mental health services is detrimental to one’s military career, and thus many servicemembers may avoid seeking mental health care to prevent such information from impinging on their military records or coming to the attention of military command. Such fears of negative career consequences could be alleviated by allowing servicemembers with less-severe mental health issues to easily and confidentially receive mental health services. Making such services available and openly encouraging their use would likely lessen the perceived negative consequences associated with seeking mental health care, and they could result in broader and earlier treatment-seeking that could reduce the probability of mental health problems becoming prolonged or severe.

The DoD Mental Health Task Force did not include recommendations for approaches that would alleviate concerns about negative career consequences associated with use of mental health services. Encouraging use of confidential mental health services runs counter to prevailing views that command should have access to information about all mental health service use to evaluate individual readiness.

Quality of Mental Health Care

In this section, we turn our attention to the quality of care provided to military servicemembers suffering from post-traumatic stress disorder or major depression. We describe treatments for these conditions and summarize the scientific evidence about the treatments’ effectiveness. We provide some perspective on quality of care by putting the current VA and DoD treatment guidelines for these conditions in the context of the evidence. We review some successful strategies for improving care. We conclude by briefly reviewing efforts to measure and improve the quality of mental health care provided for military servicemembers and veterans.

What Is High-Quality Evidence-Based Treatment for PTSD and Major Depression?

PTSD is an anxiety disorder that occurs after a traumatic event in which there was a threat of serious injury or death and to which the individual's response involved intense fear, helplessness, or horror. We conducted a literature review to establish the evidence base for current PTSD treatments, using the relevant online databases. A detailed discussion of our review process and findings appears in Appendix 7.C.

There are four basic kinds of treatment for PTSD:

- *Cognitive-behavioral treatments* (e.g., exposure therapy, cognitive processing therapy)
- *Pharmacotherapy* (e.g., tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors [SSRIs])
- *Psychological debriefing*, including critical-incident stress debriefing
- *Other treatments* (e.g., eye-movement desensitization and reprocessing [EMDR], imagery rehearsal therapy, psychodynamic therapy, hypnosis).

These therapies are described in more detail in Appendix 7.C. Each is usually delivered by an individual provider to an individual patient. Other delivery modes include group therapy, marital therapy, and inpatient treatment. Inpatient programs are usually designed for individuals who have had multiple traumatic episodes and suffer from chronic and prolonged PTSD or for those who are considered to be a danger to themselves or others.

Several meta-analyses compare the effectiveness of specific treatments. One of the most comprehensive is Van Etten and Taylor (1998). They found that psychological therapies had significantly lower dropout rates (14 percent) than drug therapies (32 percent); they were also more effective than drug therapies in reducing symptoms. Behavior therapy and EMDR were the most effective psychological therapies. Among the drug therapies, the SSRIs and carbamazepine (an anticonvulsant and mood-stabilizing drug) had the largest treatment improvement effects. SSRIs had some advantage over psychosocial therapies in treating major depression. However, the (British) National Institute for Health and Clinical Excellence practice guidelines (2005) discussed several studies of SSRIs, suggesting inconclusive evidence that these drugs were effective for PTSD symptoms. Similarly, the Institute of Medicine (2007) summary of available treatments for PTSD concluded that exposure-based cognitive-behavioral treatments have the most evidence to support them, whereas the evidence for medications is still weak. Evidence does not support psychological debriefing as an effective treatment.

The scientific literature supports the VA/DoD guidelines for PTSD treatment, which include various forms of cognitive-behavioral therapy, as well as medication. However, neither the literature nor the guidelines address the issue of how much training is required to deliver these therapies effectively.

Major depression is a serious mental disorder. Its symptoms, including feeling hopeless or sad most of the time, loss of interest in activities previously enjoyed, energy loss, and thoughts of suicide, interfere with daily functioning. Major depression can also have long-term chronic effects on physical health and other outcomes (see Chapter Five). As we did for PTSD, we conducted a literature review to establish the evidence base for current treatments for major depression, using the relevant online databases. Details appear in Appendix 7.C.

Recognizing major depression can be difficult. Many studies have shown that primary care providers fail to detect depression 35 to 50 percent of the time (Gerber et al., 1989; Simon and Von Korff, 1995); military providers appear to have similar difficulties (Hunter et al., 2002).

There are four basic types of major depression treatments:

- *Psychotherapy*, including cognitive-behavioral therapy, cognitive therapy, and interpersonal therapy
- *Pharmacotherapy*, using many different kinds of medications
- *Shocks or stimulation to the brain*, including electroconvulsive therapy and transcranial magnetic stimulation
- *Complementary treatments*, such as relaxation and herbal remedies.

These types of treatments are described in greater detail in Appendix 7.C. As with PTSD treatments, depression treatment is usually delivered by an individual clinician to an individual patient. However, these therapies can also be delivered in group therapy, marital therapy, or inpatient treatment modes. Inpatient treatment is designed for people with severe depression, including those who have made suicide attempts or are a threat to others.

The scientific literature supports use of psychotherapies as effective treatment for major depression. There is also evidence that medication is efficacious, especially SSRIs. Severe major depression is effectively treated with electroconvulsive therapy and transcranial magnetic stimulation. There is less definitive evidence that some complementary therapies, such as St.-John's-wort or exercise, are effective.

The scientific literature provides a firm basis for VA/DoD's depression practice guidelines. As with PTSD, neither literature nor guidelines provide information about how much training is required to deliver these therapies effectively.

What Organizational Models Support High-Quality Mental Health Care?

Organizational strategies and models are needed to translate knowledge about effective treatments into the day-to-day operations of health care systems and services. The broad definition of *quality* presented in Figure 7.1 must be kept in mind when we consider the kinds of organizational approaches that have been most successful in improving quality. Beyond delivering treatments supported by scientific evidence, organizational

models that support high-quality care must attend to safety, efficiency, timeliness of care, as well as informing and involving patients in decisionmaking.

Many of the most obvious strategies aimed at closing the gap between high-quality care and usual practice simply do not translate into actual improvement. In fact, the literature on health care provider behavior suggests that many quality-improvement (QI) interventions do not change provider behavior (Berwick, 1989; Davis et al., 1995; Lomas and Haynes, 1988) especially over the long term (Lin et al., 1997).

One potential explanation is that providers' attitudes, beliefs, and motivations are rarely considered in the design of interventions. Decades of behavioral science theory and research have shown that these factors are key determinants of behavior change (see, for example, Ajzen and Fishbein, 1980; Bandura, 1986; Rubenstein et al., 2000). An intervention is unlikely to succeed unless physician leadership and organizational buy-in are achieved in advance. Studies have found that provider participation in QI can be limited without strong support from leadership (Parker et al., 2007) and that care management teams believe support from leadership to be a critical factor in implementing successful QI for depression care (Rubenstein et al., 2002).

Many of the models that have been developed for improving the care of chronic illness in medical settings, including care for depression, are potential models for addressing post-deployment mental health problems. Extending these models to improve the care of both major depression and PTSD has potential utility for military servicemembers because the two diseases are common, often co-occurring, and the medical setting is associated with less stigma than a mental health setting.

These models include collaborative care, which promotes coordination between mental health specialists and primary care providers. Other team-based models of QI also have the potential to improve care for military mental health problems. Central features of these approaches include patient self-management, which addresses the goal of *patient-centeredness* from the IOM framework (defined in the beginning of this chapter) and the use of a care manager to coordinate disease-management activities. In the remaining subsections, we discuss findings related to different approaches to improving care. These are grouped by the characteristics of the interventions and include multicomponent interventions (those interventions that involve mixing modalities or treatment components), collaborative care approaches, multicomponent quality-improvement techniques, and telephone screening, outreach, and care-management approaches.

Multicomponent Interventions. Interventions that use a single approach (such as education alone or reminders alone) do not improve care (Rollman et al., 2002; Thompson et al., 2000); interventions that include multiple components in a comprehensive program do. For example, systematic reviews of randomized trials have shown that such multimodal interventions, which are based on standardized approaches for primary care management of depression, can improve depression outcomes (Gerrity et al., 2001; Gilbody et al., 2003; Gilbody et al., 2006; Rubenstein et al., 2006).

The Institute for Healthcare Improvement's Chronic Illness Model is a widely accepted approach to improving care that incorporates six key components for targeting change (The Chronic Care Model, undated; Wagner et al., 2001): (1) *delivery system redesign*, which incorporates the care-management role, a practice team to facilitate coordination and communication, the care delivery process, proactive follow-up, and planned visits; (2) *self-management strategies*, which include patient education and activation, needs and readiness assessment, self-management support, and collaborative decisionmaking with patients; (3) *decision support*, which includes institutionalizing guidelines and protocols, provider education, and consultation support; (4) *clinical information systems*, which include use of a patient registry system or electronic medical record (EMR), care planning and management information, and performance data or feedback; (5) *community linkages* for patients and the community; and (6) *health system support*, which includes support from leadership, provider participation, and a coherent approach to system improvement.

Data from the Improving Chronic Illness Care Evaluation (ICICE Web site) suggest that nearly all of the sites that used the model to improve depression care were able to sustain practice changes over an 18-month period, including enhanced clinical protocols; improved systems for identifying, treating, and following patients with depression; and better linkages with mental health services (Meredith et al., 2006).

Collaborative Care Models. Important lessons can be learned from collaborative care experiences about how to support quality improvement. *Collaborative care* is a disease-management approach that highlights optimal care-management roles for primary care, mental health specialty, and allied health professionals to improve the delivery of services for patients with chronic medical conditions and psychiatric disorders (Katon et al., 2001; Von Korff et al., 1997). These models of care have the potential to improve clinical outcomes for patients with mental disorders (Katon et al., 1999; Katon et al., 1996; Roy-Byrne et al., 2001; Zatzick et al., 2004; Zatzick et al., 2001). These interventions have also been shown to be cost-effective (Katon et al., 2002).

As noted earlier in this chapter, the VA's national depression collaborative care program (Department of Veterans Affairs, 2007g) to enhance screening, case management, outcomes monitoring, and referral for patients with persistent symptoms of depression (Rubenstein et al., 2004) is an example of success. Other successful quality-improvement programs include the Bureau of Primary Health Care effort to integrate mental health professionals into primary care for low-income patients (Mauksch et al., 2001) and a program in Maine that targets patients identified as depressed by primary care providers and starts them on antidepressants with telephone follow-up by case managers (Korsen et al., 2003).

Collaborative models have also been successful in treating anxiety disorders, including panic and PTSD. For example, a collaborative care intervention significantly improved the quality of care and clinical and functioning outcomes for patients with panic disorder in primary care (Roy-Byrne et al., 2001). This same intervention pro-

duced significantly more anxiety-free days and equivalent total outpatient costs compared with usual care (Katon et al., 2002). An assessment by Rollman and colleagues (2005) showed that telephone-based collaborative care for panic and generalized anxiety disorders improved clinical (anxiety symptoms) and functional outcomes (health-related quality of life and work productivity) more than usual care. Another study found that collaborative care was significantly more effective than usual care in treating older adults with and without co-occurring panic disorder and PTSD (Hegel et al., 2005). Other applications to PTSD are being developed but as yet are untested.

Multicomponent Quality-Improvement Programs. Quality-improvement programs that emphasize the role of a care manager are also worthy of consideration for military mental health. Partners in Care (Rubenstein et al., 1999; Wells, 1999) compared two types of enhanced-care programs with usual care in 46 diverse primary care clinics. In one type of enhanced care, nurse specialists were trained to provide follow-up assessments and support patients' adherence to treatment through monthly contacts for 6 or 12 months. In another type of enhanced care, local psychotherapists were trained to deliver a manualized form of individual and group cognitive-behavioral therapy for 12 to 16 sessions. To increase access to therapy, the organizations reduced the therapy co-payment to the level of the co-payment for a primary care visit.

Both enhanced-care programs increased the proportion of patients who received appropriate care at 6 and 12 months, as well as improving outcomes, including work productivity (Wells et al., 2000). The programs also improved primary care clinician knowledge and practices regarding depression care over 18 months (Meredith et al., 2000) and long-term (two-year and nine-year) patient outcomes (Sherbourne et al., 2001; Wells et al., 2007), and they were found to be cost-effective (Schoenbaum et al., 2001).

Team-based care also has been shown to improve care for depressed older adults (Katon et al., 2006; Schoenbaum et al., 2001; Sherbourne et al., 2001; Ünützer et al., 2005; Wells et al., 2000).

The MacArthur Initiative on Depression and Primary Care developed the Re-Engineering Systems for Primary Care Treatment of Depression Project (RESPECT), another highly successful systematic QI program for depression in primary care (Dietrich et al., 2004). This intervention integrates efforts of a primary care clinician, a care manager, and a mental health professional, working in conjunction to manage a patient's depression. Care managers provide telephone support weekly after the initial visit and monthly thereafter and help patients overcome barriers to adherence. Psychiatrists supervise care managers through weekly telephone contact, and clinicians may also contact psychiatrists for informal telephone advice. The evaluation found that patients treated for depression in those primary care settings showed significant improvement and increased satisfaction with care relative to the care-as-usual control.

Even quality-improvement interventions that do not involve a predesigned program have proven successful in lowering rates of major depression, improving functioning, and increasing satisfaction. The Mental Health Awareness Project compared two alternative approaches to structuring quality-improvement teams and designing evidence-based interventions in three VA and six managed care clinics (Rubenstein et al., 2006). One approach was decentralized; it emphasized meetings in the local primary care practice involving a multidisciplinary team and a quality-improvement facilitator, with some expert input. The other approach emphasized delegation of planning to regional experts, with some input from local leaders. Both types of teams were responsible for implementing locally the interventions they designed. Patients treated in both programs received more-appropriate care for depression and had improved social functioning after one year.

Telephone-Screening, Outreach, and Care-Management Approaches. A recent randomized controlled trial investigated how a depression outreach-treatment program affected work productivity (Wang et al., 2007). The intervention used telephonic outreach and care management to encourage workers who met positive screening criteria for depression to begin outpatient treatment (e.g., psychotherapy and/or antidepressant medication), monitored treatment quality continuity, and tried to improve treatment by making recommendations to providers. The intervention also offered telephone cognitive-behavioral therapy for workers reluctant to enter treatment. The program significantly improved both clinical outcomes and workplace outcomes. These findings underscore employers' return on investments for such programs in increased productivity. Extending such a program to the military or VA settings could potentially improve care for military personnel without compromising workplace productivity.

To What Extent Are Quality Standards and Processes for Mental Health Care Supported in Systems of Care for Veterans and Military Servicemembers?

In this section, we discuss findings with respect to how the systems of care for veterans and military servicemembers are using quality standards and processes for mental health care.

Veterans Health Administration. To counter a growing reputation for inefficient and mediocre health care, the Veterans Health Administration (VHA) underwent a major strategic transformation beginning in 1995. The VHA sought to develop an integrated health system defined by patient-centered, high-quality, and high-value health care (Kizer, 1995). This transformation shifted services from inpatient settings to outpatient clinics and home care, helping to increase access to services while cutting costs. As discussed above, the VA also organized itself into geographically defined networks, called Veterans Integrated Service Networks, to enhance the coordination of services and resources at the network level and to move from a facility-centric model to a population- and patient-centric one.

The VHA began an extensive program of national performance measurement that systematically assessed a number of performance indicators using administrative data, as well as patient satisfaction. To promote a culture of accountability, the VHA provided detailed and publicly available information on the performance of each network and medical center.

Quality Management. The VA has established a robust infrastructure to actively manage quality. In the clinical area, the VA is affiliated with 107 academic health systems and the DoD MHS, which helps drive implementation of evidence-based practices (Perlin, Kolodner, and Roswell, 2005).

The VHA's Health Services Research and Development Service is an intramural research program. Its goal is to identify and evaluate innovative strategies that lead to accessible, high-quality, cost-effective care for veterans and the nation (Department of Veterans Affairs, 2007a). Its 13 Centers of Excellence⁵ are affiliated with VA Medical Centers, and each Center develops its own research agenda and collaborates with local schools of public health to carry out its mission (Department of Veterans Affairs, 2007b).

Most research projects are distinct, relatively short-term efforts to study and support specific aspects of the VHA transformation. However, these individual efforts are complemented by the Quality Enhancement Research Initiative (QUERI) (McQueen, Mittman, and Demakis, 2004), a larger sustained effort to systematically study and enhance VHA clinical programs, including their quality, processes, and outcomes. QUERI's mission is to facilitate and support ongoing improvement in outcomes and in clinical care delivery. QUERI centers currently exist for colorectal cancer, diabetes mellitus, HIV/AIDS, ischemic heart disease, mental health, spinal-cord injury and disorder, stroke, and substance-use disorders (McQueen, Mittman, and Demakis, 2004). See the subsection Quality Management of Mental Health below for specific QI efforts related to mental health.

Another key component of the VA's system design that supports high quality of care is its health information technology system. The VA's computerized patient record system (CPRS) was developed to provide a single interface for health care providers to review and update a patient's medical record and to place orders. CPRS is integrated throughout the VA system and can be used across the spectrum of health care settings. The VA patient record system organizes and presents all relevant patient data in a

⁵ Ann Arbor, MI: Center for Practice Management & Outcomes Research; Bedford, MA: Center for Health Quality, Outcomes, and Economic Research; Boston, MA: Center for Organization, Leadership and Management Research; Durham, NC: Center for Health Services Research in Primary Care; Hines, IL: Center for Management of Complex Chronic Care; Houston, TX: Houston Center for Quality of Care and Utilization Studies; Indianapolis, IN: Center of Excellence on Implementing Evidence-Based Practice; Iowa City, IA: Center for Research in the Implementation of Innovative Strategies in Practice; Minneapolis, MN: Center for Chronic Disease Outcomes Research; Palo Alto, CA: Center for Health Care Evaluation; Pittsburgh/Philadelphia, PA: Center for Health Equity Research and Promotion; Seattle, WA: Northwest Center for Outcomes Research in Older Adults; Sepulveda, CA: Center for the Study of Healthcare Provider Behavior.

manner that supports clinical decisionmaking. For example, the system's comprehensive cover sheet displays timely, patient-centric information including active problems, allergies, current medications, recent laboratory results, vital signs, hospitalization, and outpatient clinic history. Moreover, this information is displayed immediately when a patient record is selected and provides an accurate overview of the patient's current status before any clinical interventions are ordered (Perlin, Kolodner, and Roswell, 2005). The VA is planning to make further enhancements to CPRS to allow for greater customization, expanded functionality, and easier integration with commercial software (Department of Veterans Affairs, 2007i). Specifically, recommendations from the Task Force on Returning Global War on Terror Heroes have given impetus to a series of seven information-technology initiatives, which include the development of a veterans' tracking application, a TBI database, a DoD/VA theater interface, the creation of a polytrauma marker, the creation of an OEF/OIF combat-veteran identifier, an electronic patient handoff information system, and a DoD scanning interface with CPRS (Department of Veterans Affairs, 2007i).

There is also evidence suggesting that these VA efforts have resulted in documented improvements in the quality of care the VA provides: in standard indicators, reflecting, among other things, the delivery of preventive primary care, care of chronic disease, and palliative care (Jha et al., 2003).

For example, one study compared the quality of VA care with quality of care in a national sample of patients and found that VA patients with specific medical conditions, including major depression, received higher-quality care. The differences were greatest in areas in which the VA has established and actively monitored performance measures (Asch et al., 2004), including quality of care for depression. No similar evaluation of the quality of care for PTSD is available. Another study found that the quality of diabetes care was better for VA patients than for patients enrolled in commercial managed care organizations (Kerr et al., 2004).

These changes in the VA health system have also been met with increases in veterans' satisfaction. On the American Customer Satisfaction Index (University of Michigan School of Business, 2004), satisfaction had improved for both inpatients and outpatients of VA Medical Centers.

Quality Management of Mental Health. The VHA transformation of 1995 mandated the development of a National Mental Health Program Performance Monitoring System to be developed by the Northeast Program Evaluation Center (Kizer, 1995). This organization focuses on inpatient and outpatient mental health service delivery, including reports on special programs. Performance measures evaluating mental health services are reported for seven areas (Rosenheck, 2006):

1. Health Care for Homeless Veterans, and Domiciliary Care for Homeless Veterans Programs

2. Compensated Work Therapy, and Compensated Work Therapy/Transitional Residence Programs
3. PTSD Performance Monitors and Outcome Measures
4. Mental Health Intensive Case Management
5. Performance Measures from the National Mental Health Program Performance Monitoring System
6. Adherence to Pharmacotherapy Guidelines for Patients with Schizophrenia
7. Outcomes on the Global Assessment of Functioning Scale.

In addition, the Mental Health Quality Enhancement Research Initiative (MH-QUERI) helps improve the quality of care and health outcomes of veterans with schizophrenia and major depression (Department of Veterans Affairs, 2007h). MH-QUERI utilizes the following process to identify gaps in performance and implement strategies to address these areas (Department of Veterans Affairs, 2007h):

- Identify high-volume/high-risk diseases
- Identify best practices
- Identify existing practice patterns and outcomes across the VA and current variation from best practices
- Implement strategies to promote best practices
- Document that best practices improve outcomes
- Document that outcomes are associated with improved health-related quality of life.

One of MH-QUERI's primary efforts is to focus on implementing the collaborative care model for major depression. Researchers adapted a depression collaborative care model for use in VA settings, including planning for implementation and evaluation of these programs (Department of Veterans Affairs, 2007g). A key feature of this treatment model is collaboration between primary care providers and mental health specialists, supported by a depression care manager. The care manager, under supervision of a mental health specialist, works with a primary care provider to assess and manage patients suffering from depression (Department of Veterans Affairs, 2007g).

A study conducted in 2000 found that, although the VA treats a more psychiatrically troubled population, the VA appeared to have made greater improvements in quality of treatment over time than had the private sector, possibly demonstrating the return on investment for its various quality activities (Leslie and Rosenheck, 2000).

The VHA's long-standing focus on mental-health performance assessment and quality improvement makes it a leading model of an integrated health systems approach to quality. Nonetheless, significant challenges remain, including maintaining the quality of care with the increasing demand for services resulting from benefit enhancements and with the influx of veterans who have served in OEF/OIF (Rosenheck,

2006). For example, a recent report (Rosenheck and Fontana, 2007) showed that the number of veterans using specialty mental health services in the VA increased by 56 percent between 1997 and 2005. Most of this increase is due to an increased demand by Vietnam-era veterans, but the number of young Gulf conflict veterans receiving VA mental health services grew rapidly after 2001. In 2005, this group accounted for up to 3 percent of users of VA mental health services. This expansion of mental health services to a larger number of veterans was associated with a reduction in the average number of mental health visits received by users per year. Veterans with PTSD, for example, received an average of 25 mental health visits in 1997, compared with 14 visits in 2005.

DoD Health Care System. DoD undertakes significant efforts to monitor quality of care and consumer satisfaction through surveys and other methods. However, it currently lacks a programmatic and synchronized focus on performance measurement or quality-of-care indices.⁶ In this regard, the VA's model of performance monitoring and quality management may provide a template for the U.S. military health system. Just as the VA's quality infrastructure has led to significant advances in health care and metrics by which that health care can be judged, so too would the U.S. military health system benefit from a rigorous and scientifically based quality-assurance process.

One critical element of quality relates to the delivery of evidence-based therapies for PTSD or major depression. As previously noted in this chapter, the Departments of Defense and Veterans Affairs published clinical-practice guidelines for the treatment of PTSD in 2004. The guidelines advocate the use of four PTSD psychotherapies: cognitive therapy, eye-movement desensitization and reprocessing, exposure therapy, and stress inoculation. Unfortunately little is known regarding the extent to which DoD clinicians actually deliver these therapies during routine therapeutic contacts. Only one study is known to address this issue (Russell and Silver, 2007). However, it used a convenience sample and so should not be taken as authoritative on DoD clinical practice. That said, the report found that only 10 percent ($n = 14$) of 137 DoD mental health professionals surveyed (consisting mostly of psychologists and social workers) use any of the four recommended psychotherapeutic modalities. Of these 14 clinicians, only four reported that DoD funded their training.

These results are consistent with other study findings suggesting that passive dissemination of clinical-practice guidelines has only a nominal effect on implementation (Grol and Grimshaw, 1999). As Parry, Cape, and Pilling (2003, p. 45) observe, "Even well-resourced, national guidelines, published in multiple media, can fail to reach, let alone impact, their target audience."

DoD has consequently developed several programs designed to train clinicians in the therapeutic guidelines. One such program is run by the Center for Deployment

⁶ This is of course not to argue that DoD health care is of poor quality. It is simply that processes and systems are not in place to systematically measure and report quality of care.

Psychology, which provides a two-week psychotherapy training course for military and civilian psychologists and psychology interns (Russell, 2007). The program has already trained 120 DoD clinicians (Department of Defense Task Force on Mental Health, 2007b). Other efforts include a joint DoD-VA regional training initiative and training programs developed by the individual Service branches. According to a stakeholder interview, all of these programs utilize the contracted help of nationally recognized experts in PTSD therapies.

DoD recently created the Defense Center of Excellence for Psychological Health and Traumatic Brain Injury, in part based on a recommendation from the DoD Mental Health Task Force and from the Army Task Force on TBI (discussed in the section on TBI below). As part of its mission, the Defense Center of Excellence will establish a core curriculum to train all DoD mental health personnel on current and emerging clinical-practice guidelines. The Center would further develop mechanisms to ensure widespread dissemination of this curriculum. The program will apply the model initiated by the Center for Deployment Psychology by contracting with clinical-practice experts to provide intensive training and will use ongoing supervision to ensure the application of knowledge to clinical practice (Department of Defense Task Force on Mental Health, 2007b).

A well-planned and active approach to training clinicians in evidence-based treatments is a key first step in ensuring the delivery of evidence-based care. However, training seminars, in and of themselves, may not be sufficient. As previously noted, multifaceted approaches to disseminating clinical-practice guidelines are important. These approaches ensure clinician training while providing clinical reminders to follow practice guidelines and audit compliance (Parry, Cape, and Pilling, 2003).

This multifaceted strategy may be missing from the Department of Defense's plans to ensure implementation of clinical-practice guidelines. The Mental Health Task Force was unable to identify any mechanism within the medical community that ensures widespread use of evidence-based treatments. For example, at present there is no monitoring system in place that systematically documents the specific treatments provided to military mental health patients (Russell, 2007). There is likewise no system in place for auditing patient charts. Without such a system, even training that is broadly and fully implemented may fail to change the individualized habits of mental health clinicians.

Multifaceted strategies are not simple to implement and often require additional staffing, along with organizational changes to the clinical practice (Parry, Cape, and Pilling, 2003). The Mental Health Task Force was correct to assert that "assuring these practices and guidelines are actually implemented throughout the system is a daunting challenge that requires significant attention by mental health providers" (Department of Defense Task Force on Mental Health, 2007a, p. 33).

One example of implementation of a multifaceted model in a military health setting is the RESPECT-Mil program. RESPECT-Mil, based on the RESPECT program

described above, is designed to decrease stigma and improve access to care by providing behavioral health care within the primary care setting. The intervention provides primary care–based screening, assessment, treatment, and referral of soldiers with depression and PTSD through a RESPECT-Mil facilitator, who provides continuity of care for mental health problems. The program preserves soldier choice by motivating patients to work with their provider to choose counseling or medication; it also allows soldiers to work with the facilitator to learn about the range of available resources, such as Military OneSource, chaplains, and the Army Community Services.

The study was first piloted at Fort Bragg. The pilot was successful, based on feasibility testing with 30 primary care providers in one troop medical clinic. Those providers received training on the RESPECT-Mil model and on care for depression and PTSD (Engel et al., in press). Over 4,000 patients were screened; 10 percent met screening criteria for depression, PTSD, or both. Sixty-nine patients participated in collaborative care for at least six weeks, and most made clinically significant improvements. Currently, the program is being expanded to 14 other Army locations representing 40 primary clinics.

Community-Based Mental Health Specialists. Active-duty military service-members, veterans, and reservists who are unable to or choose not to receive care through Military Treatment Facilities or the VA may access a broad array of mental health service providers in the community. Care from these providers may be covered and reimbursed by TRICARE insurance or another health insurance plan (e.g., an employer-sponsored plan), or may be paid for out of pocket by the individual receiving care.

These civilian mental health specialty practitioners are licensed and accredited providers. However, they operate as independent solo or group practitioners, and they are affiliated with a broad range of hospitals, clinics, or specialty facilities. They typically accept reimbursement from a broad range of health insurance plans, and participate in preferred-provider networks across multiple health plans. Unlike VA facilities or Military Treatment Facilities, these providers do not work within an integrated staff model, so there is much less opportunity for DoD or the VA to directly assess and influence clinical-practice patterns.

Health plans, to distinguish their health care services in the marketplace and often to meet requirements of large purchasers (e.g., employers, government entities), play a central role in quality assessment and assurance. An important trend in the commercial health-insurance industry over the past 20 years has been to “carve out” mental health and substance abuse benefits from other medical benefits; these benefits are then managed by behavioral health plans that assume responsibility for providing health-plan members with access to mental health specialty care networks, reimbursing those clinical providers, and managing aspects of the costs and quality of care (Burnam, 2003; Feldman, 2003).

Measuring Quality of Community-Based Services. Behavioral health plans manage quality by ensuring that providers are appropriately licensed and credentialed; maintain systems that monitor utilization of services and performance; and meet quality standards promulgated by independent accrediting organizations, including the National Committee for Quality Assurance (NCQA) and the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO). Performance measures used by health plans are based on routinely collected administrative data (claims, or encounter data) that are generated by outpatient visits, hospital stays, medical procedures/tests, and the filling of prescriptions. Many plans report a standardized set of performance measures, known as HEDIS (Healthcare Effectiveness Data and Information Set) to NCQA, which in turn generates reports comparing plans and reporting national statistics (NCQA, 2007).

Health plans and purchasers face significant challenges in measuring and influencing the quality of care delivered by a vast network of providers whom they do not directly employ. However, some approaches are promising. Behavioral health plans have taken a leading role in efforts to improve measures of the quality of mental health care delivered to their beneficiaries, to disseminate information about evidence-based practices and guidelines to clinical providers, and to participate in demonstrations of state-of-the-art quality-improvement strategies. Particularly promising are approaches that measure satisfaction with mental health care using such instruments as the Experiences of Care and Health Outcomes survey (Eisen et al., 2001) and routine assessment of mental health symptoms/outcomes using self-report surveys (G. S. Brown et al., 2001).

A particularly challenging problem is developing performance indicators that provide information about the type of psychotherapeutic techniques used in treatment, since administrative data are not detailed enough to capture this information (Institute of Medicine. Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders, 2006). As a result, we know little from descriptive studies or reports from health care systems about the extent to which appropriate, evidence-based therapies are being received by patients who see those providers for therapy. Nonetheless, there are some innovative models of ways that behavioral health plans can influence care to improve psychotherapy, including the facilitation of goal-focused psychotherapy (Goldman, McCulloch, and Cuffel, 2003), and using trained clinical staff to provide care management at the level of the behavioral health care organization (Wang et al., 2007). By contrast, simply distributing guideline information to clinical providers has no demonstrable effect (Azocar et al., 2003).

Measuring Quality of TRICARE Community-Based Services. TRICARE health benefits used outside the Military Treatment Facilities are managed through contracts with commercial health plans for each of the three TRICARE regions. In two of these regions, management of treatment benefits for mental health and substance abuse is carved out to behavioral health plans. All of these plans report HEDIS measures to

NCQA; these measures include some indicators of quality of care for major depression, but no indicators for PTSD or other anxiety disorders. They also collect information on patient satisfaction with general health services, using self-report surveys. Regional TRICARE staff work with health-plan managers to review HEDIS and other performance indicators and patient-satisfaction reports.

It is our understanding that, to date, there has been relatively little focus on examining performance indicators and no measurement of patient satisfaction for the mental health services beneficiaries receive (stakeholder interviews). DoD could focus efforts on these areas and, in collaboration with regional health and behavioral health plans, develop better information for evaluating the quality of mental health services delivered by community-based providers.

Summary of Critical Gaps

We began this chapter by describing a conceptual model commonly used in health services research, and we used the model's components—barriers and facilitators to care, service use, quality of care, and outcomes—to organize our review of services available to military servicemembers returning from deployment with mental disorders. We identified two kinds of service gaps—gaps in access and gaps in quality, and we use these categories to summarize our discussion below.

However, our overarching conclusion from our review is that efforts to fill service gaps will not be successful unless they take into account the other components of the system. For example, expanding the number of mental health providers will not make care more accessible if the concerns about negative consequences associated with getting care are not addressed. Evidence-based care cannot be implemented effectively unless there is a way to continuously measure and improve it. Our specific recommendations should be interpreted in the context of this broader systems framework.

Gaps in Access to Care and Care Quality for Active Duty Military Servicemembers

Access. Available literature documents a large gap between need for mental health services and use of such services by active duty servicemembers. Structural aspects of services, as well as personal and cultural factors, are important to understanding and narrowing this gap.

Evaluating and Expanding Access to Mental Health Services Will Require a Broad Approach That Allows Coordination of Resources and Services Across DoD Organizational Silos. A broad array of mental health services is available to active duty military servicemembers: intensive inpatient services in a few select military hospital sites, outpatient medical services available in the Military Treatment Facilities of most installations, mental health specialists and chaplains attached to units, installation-based community service counseling, counseling from community-based providers

through Military OneSource, and TRICARE-covered services delivered by community providers and facilities for the small but increasing number of servicemembers (including those in the Reserve Component) who are not in proximity to a Military Treatment Facility.

Much attention has been focused on barriers to accessing services within one of these organizational silos—the Military Treatment Facilities—including the shortage of uniformed mental health specialty providers, long waiting times, and unfilled training slots. DoD has plans to expand MTF capacity to provide mental health services by hiring additional providers. Part of the solution is likely to be increasing incentives of various kinds to recruit and retain more uniformed mental health specialty providers. However, these changes will not bear fruit for several years.

A broader and more integrative view of available mental health specialty and counseling resources could help to close gaps in the nearer term by making more-efficient use of existing resources to better meet mental health needs of military servicemembers. For example, DoD could revise policies that limit military community service counselors to behaviorally or environmentally defined problems, such as work stress and anger management. These counseling resources might be more efficiently and effectively used if the scope of practice were expanded to include evidence-based counseling, such as cognitive-behavioral therapy, for military servicemembers with PTSD and major depression, with referrals to an MTF if disorders are severe, complex, or unremitting. Reconsidering the roles for Military OneSource and TRICARE network providers could also expand access to care.

Military Institutional and Cultural Barriers to Access Are Considerable and Not Easily Surmounted. The stigma associated with having a mental disorder is a broad national concern, not solely a concern within the military. However, military training, culture, institutional structures, and policies foster stigma and prevent individuals from seeking care because they fear that using services will limit their military-career prospects or cause them to be viewed as weak or unreliable. These cultural and institutional influences are pervasive and powerful, and thus not easily overcome.

In response to recommendations from the DoD Mental Health Task Force, DoD has developed a plan to achieve the vision embodied in the recommendations. One of six key objectives of the plan is to “build psychological fitness and resilience, while dispelling stigma” (Department of Defense Task Force on Mental Health, 2007b, p. 41). To achieve this objective, DoD plans educational efforts (anti-stigma campaign, psychological-health education) and the implementation of a program to embed operational “psychological health professionals” into line units—similarly to the Marine Corps OSCAR program.

Educational efforts to increase knowledge about psychological and mental health might convince military servicemembers that treatment is beneficial, or they might help them manage problems on their own. However, education is unlikely to significantly affect servicemembers’ willingness to seek treatment for mental health problems,

because it does not address what servicemembers see as the negative consequences of doing so. In making a decision to seek mental health care, an individual weighs the benefits of using services (might help relieve my symptoms, my family would benefit if I felt better) against the costs (might affect my promotion, have to take time off work, medications have bad side effects). These fears are based on perceptions of institutional policies and practices that are, in fact, associated with some risk of negative career consequences.

Bringing about cultural change that reduces resistance to use of services and promotes psychological health for active duty personnel will require confronting institutional barriers. One recent change, which modified the inquiry about previous mental health care on the application form for a security clearance, is an important step in this direction. It is clear, however, that many servicemembers will be reluctant to use services unless they are convinced that there will be no negative work repercussions.

DoD Could Reduce Barriers to Using Mental Health Services by Making Confidential Counseling Available to Military Personnel During Off-Duty Hours. A “safe” counseling services program in garrison could support and supplement psychological health providers embedded in units. Programs could offer evidence-based psychotherapies for PTSD and depression, as well as counseling for a broader range of emotional and situational problems, with the overarching goal of early intervention to promote effective coping and resilience among those who have experienced the stresses of combat. If counseling is to be perceived as safe, confidentiality would have to be explicitly ensured and clearly communicated. As with mental health counseling available to the general civilian population, confidentiality would be broken only if the counselor determines that the individual is a threat to him- or herself or to others. Counseling services that could be broadened in this way already exist within the array of available community support programs, but they have not been explicitly tasked to address the mental health needs of those returning from deployment.

We recognize the challenges to providing “safe” counseling services to active duty military servicemembers. One challenge is that command would not necessarily be notified when a servicemember uses such services. Commanders value information that a servicemember is receiving mental health services to help determine fitness for duty and individual readiness, and to evaluate whether an individual’s mental status limits his or her proper handling of weapons and other ordnance. Second, treatments provided by “safe” counseling programs cannot be continued during deployments, and this temporary termination of treatment could theoretically cause complications in mental health status. Furthermore, formal availability and recognition of “safe” counseling programs will inevitably result in the development of guidelines for cases that require referral to command or traditional Military Treatment Facility mental health services; these guidelines may diminish perceptions about the program’s confidentiality.

These challenges understood, “safe” counseling programs can address a key barrier to mental health treatment and result in more servicemembers receiving mental

health treatment that they would not have otherwise accessed. Guidelines for command notification may be required, but benefits may still accrue if those guidelines were less conservative than they are currently, and transparent to servicemembers. It is true that treatment would be temporarily put on hold during deployment; however, such a hiatus seems a superior alternative to not receiving treatment at all. If these counseling programs treated less-severe forms of mental disorders, as would be the case, then the risks of terminating counseling would be extremely minimal. Regular contact with a counselor may also provide an opportunity to motivate servicemembers to disclose their condition to command and arrange for referral to a Military Treatment Facility and the deployment-related treatment that would ensue.

“Safe” counseling would not replace mental health services within the Military Treatment Facilities, nor the usual channels of command referral to these services. Those whose mental health problems are severe, who require medications, who are command-referred because their ability to function is in question, or who prefer medical evaluation and treatment would still have access to the broad range of specialty mental health services available within the MTFs.

Unit Cohesion Can Help to Stem or Even Reverse Development of Mental Health Problems, and NCO Programs May Provide an Approach That Strengthens the Supportive Capacity of Unit Peers. Previous research has documented that high unit cohesion protects soldiers and marines from combat-stress reactions. The social support that cohesive units provide to individual servicemembers no doubt plays a critical role in this protection.

Several initiatives have sought to further harness the supportive role of unit peers. The original, but not currently implemented, version of the Marine Corps’s OSCAR program requires one or two mid-level NCOs per company to be trained as peer mentors. Referrals from commanders for mental health care would go directly to these NCOs, who would interview the marine and, if evaluations or treatment were necessary, serve as case managers and coordinate care from disparate health providers. The NCOs would also help units cope with deployment-related stressors. A similar program was developed by the British Royal Marines.

NCO programs would fill a critical gap. Unlike typical mental health practitioners, NCOs are recruited from or serve in the line community and would be known and trusted by line personnel and command alike. With a basic level of mental health training, they could greatly expand the military’s ability to detect budding mental health problems. Importantly, they may also serve as peer counselors and consequently act as an initial and knowledgeable go-to source for troubled soldiers. Given the promise of these NCO programs for improving the health and resilience of the force, such programs merit serious consideration by both the Marine Corps and Army (Helmus and Glenn, 2005).

Battlemind training is one example of how the military is harnessing unit-level social support. *Battlemind* is a system of U.S. Army trainings (presented in group

settings using PowerPoint presentations and other educational materials) designed to help soldiers cope with the stressors of the deployment cycle. Specially tailored pre- and post-deployment briefs inform soldiers on what they are likely to see and experience, describe common and normative mental health reactions, and give guidance for seeking mental health support. The briefings convey a key message: that soldiers are responsible for each other's emotional well-being. This responsibility includes speaking to each other about troublesome experiences and being on the look out for budding mental health problems. Battlemind has not yet been subjected to rigorous scientific evaluation, so its effectiveness is not yet known. However, unit peers and small-unit leadership continue to be the first line of defense in ensuring a psychologically fit military force.

Quality. Relatively little information is available about the quality of mental health care provided in military settings, in large part because DoD has not developed the infrastructure to routinely measure processes or outcomes of care. There have been some efforts to train providers in evidence-based practices, but these efforts have not been broadly disseminated and supported with system redesign.

The newly created DoD Center of Excellence for Psychological Health and Traumatic Brain Injury is envisioned to furnish an organizational structure that will provide leadership and institutionalize excellence in care for psychological health and traumatic brain injury. The Center represents an exciting and historic opportunity to plan and implement a cross-service, system-level focus on monitoring and improving quality of care. Many lessons can be learned from the VA, which has focused on performance measurement and quality-of-care improvement for over a decade. A well-planned approach to train clinicians in evidence-based practices is a necessary but not sufficient first step to improving quality.

Successful quality-improvement efforts in health care in the VA and elsewhere have been multifaceted, including systems to support provider-patient communication and proactive follow-up, patient-centered self-management strategies, clinical information systems that assist delivery of care and provide performance feedback, linkages to community support services, and a coherent approach to system improvement. In the military context, special attention to communication with leadership and issues related to determination of fitness will add further complexities to system redesign, but these communication and decision processes could also be improved and better documented if incorporated into system redesign.

Psychotherapy is one area in which routine performance measurement has been notably lacking, beyond simply counting the number of psychotherapy visits that an individual receives. Because there are numerous psychotherapy approaches and clinicians tend to have preferred approaches, it is particularly difficult to know whether military personnel are receiving therapies that have been demonstrated to be effective. For this reason, training in evidence-based psychotherapy techniques has been most successful if it includes a period of supervised practice and if techniques are monitored

on an occasional but ongoing basis (e.g., review of taped sessions) to evaluate fidelity to the practice.

Counseling resources outside the MTF, such as specialists embedded in units and counselors in community service programs, may have licensing and the capacity to provide evidence-based psychotherapies for PTSD and major depression (for example, cognitive-behavioral therapies) or to provide advice (e.g., chaplains) that is consistent with and supports these approaches. As noted above, these nonmedical and more-informal sources of care could be essential components of an institutional approach that reduces stigma and promotes resilience and positive mental health. But attention must also be given to training, supervising, and providing feedback to support these staff and services so that appropriate, high-quality counseling will be provided.

Gaps in Access to Care and Care Quality for OEF/OIF Veterans

Access. All OEF/OIF veterans, including deactivated reservists, are eligible to receive services from the VA. Because the VA operates under a fixed budget, access to its health care services is limited by design and guided by a priority system, with non-disabled veterans lower in priority than those with designations of disability.

Recent congressional budget allocations to the VA have increased funding to expand capacity and improve services for OEF/OIF veterans. New resources will help the VA reduce gaps in access to health services for such veterans, but it will take time to plan where expansion is most critical, to fill new positions with qualified personnel, and to develop and provide appropriate training and supervision for these staff. Rushed expansion could have deleterious effects on quality, so the VA must plan and implement carefully, even though political pressures to expand access quickly are intense.

Successfully Improving Access to Mental Health Services for OEF/OIF Veterans Will Require Attention to Two Major Challenges: Expanding Service Capacity and Appealing to Younger Veterans. Expanding the capacity of services, such as PTSD clinics, does not ensure increased availability for OEF/OIF veterans. The VA has documented a surprisingly large increase in the number of Vietnam-era veterans using mental health services, greatly exceeding the increase in the number of OEF/OIF veterans. Increased demand for services from older veterans likely reflects recurrence of mental health problems and legitimate need. However, this dynamic may result in lowered access for lower-priority OEF/OIF veterans.

Young veterans are reporting that they feel uncomfortable and out of place in VA facilities, where they see that most patients are much older and receiving care for chronic mental and physical illnesses. Such perceptions can undermine younger veterans confidence in receiving the kinds of services they need. Changing this image to become a highly regarded source of care for the country's current generation of veterans will require new approaches that are likely to involve both marketing and system redesign.

It Is Important to Improve Access to Mental Health Services Beyond the VA System. We cannot expect that the VA will meet the mental health needs of all OEF/OIF veterans, both because the VA operates within a fixed budget and thus must focus on higher-priority disabled veterans and because many veterans do not live close to a VA facility. For example, traveling long distances to get a typical course of cognitive-behavioral therapy for problems with PTSD or major depression, which requires 15 to 20 weekly outpatient visits, would be a significant obstacle for most people.

Other options for mental health services are often available to veterans, including Vet Centers and care from community-based providers. Ability to pay for services from community providers depends on veterans' insurance; many have private employer-sponsored health insurance or TRICARE (i.e., if eligible). Veterans living in rural and frontier regions of the country, remote from Vet Centers and community-based specialty mental health providers, may have particularly poor access to mental health care.

Vet Centers Can Play a Critical Role in Providing Access to Mental Health Services for Those Whose Injuries Do Not Qualify Them for High-Priority Access to VA Care. Although community-based mental health specialists are unlikely to have much experience with military life or military clients, Vet Centers are uniquely designed to understand and meet the needs of military clients. Peer counselors and clinical staff who have experience with the military environment help to overcome stigma and provide social support, as well as treatment and assistance in linking to other needed services. The Centers' original focus on Vietnam-era veterans was a drawback for younger veterans, but the Centers have been changing their image and appear to be successful in adapting to better serve younger OEF/OIF veterans.

The number of Centers is growing rapidly, but further expansion could be a particularly effective way of broadening access. A needs assessment of the OEF/OIF veteran populations should guide decisions about how best to expand this capacity and reach out to veterans in underserved areas. Because Vet Centers are small, storefront operations, they may be relatively easy to expand (and later cut back) in response to changing needs.

Access to Community-Based Mental Health Specialists Through Private Employer-Based Insurance or TRICARE Is an Alternative for OEF/OIF Veterans, but Availability of These Specialists Is Highly Variable. The mental health providers participating in health plan networks are qualified, licensed professionals encompassing a range of independent-practice specialists (e.g., psychiatrists, psychologists, and social workers) and specialty facilities. However, network participation of these providers varies highly by region, and among participating providers, availability to see new clients is also highly variable. TRICARE reimbursement rates (linked by statute to Medicare reimbursement rates) may also be too low in some markets, restricting the accessibility of mental health care available to TRICARE beneficiaries. Although the MHS plans to expand capacity for mental health services by adding civilian providers

to MTFs and expanding the TRICARE network (see Department of Defense, Military Health System Web site for testimony of the Assistant Secretary of Defense for Health Affairs), analyses of the geographic distribution of these providers may prove informative for future planning. At the same time, consideration of the adequacy of reimbursement rates to retain these providers will be important.

State Governments and Community Groups Have Generated Innovative and Promising Approaches to Increasing Access to Community-Based Care for OEF/OIF Veterans. We are not aware of any current efforts to examine the effect of these access initiatives. It would be very useful if these approaches—and lessons learned from their implementation—were documented, synthesized, updated, and shared via a national clearinghouse. A potential strength of these initiatives is that they can draw on a community's intrinsic understanding of its own needs and resources to meet those needs and can flexibly build collaborations across governmental agencies, private organizations, mental health professionals, and community leaders to respond to these needs. A potential weakness of these initiatives is that they may lack capacities to mobilize needed resources or to monitor the impact of their efforts and use this feedback to guide improvements in access and quality of care. In some cases, the initiatives might benefit from additional resources or technical assistance to help them develop key capacities that will close gaps in care for OEF/OIF veterans.

Quality. The VA is at the forefront of quality assessment and improvement in health care, including care for PTSD and major depression, and is continuing to push forward. A congressionally mandated and independent study of the VA's mental health care will soon be released, providing a national, comprehensive assessment of its quality. The evaluation is likely to highlight areas in which the VA can serve as a model of quality improvement for DoD and the nation, as well as areas to target for future improvement efforts.

Vet Centers have been embracing opportunities to train their counselors in evidence-based therapies for PTSD. It is important that such training be broadly available on an ongoing basis and supported with a level of supervision that will result in high-quality care. Developing the capability to provide cognitive-behavioral therapy, an effective treatment for both PTSD and major depression, seems an obvious priority. The Centers could also benefit from systems that support delivery of quality care: information systems that track planned care and assist in follow-up, and performance-feedback systems that monitor the fidelity of therapeutic approaches and customer satisfaction.

It is extremely difficult to obtain information about the quality of care provided by the broad array of community-based independent mental health specialty practitioners, at either a group or individual level. However, commercial managed health care plans, such as those holding the regional TRICARE contracts, have both leverage and tools to assess and influence the performance of these providers. Currently, DoD staff work with regional health-plan contractors to monitor the performance

of network providers by examining administrative and claims data and conducting consumer-satisfaction surveys; however, to date, TRICARE has not focused on mental health services. DoD and its TRICARE commercial contractors trail the state of the art in assessing performance and consumer satisfaction in mental health care. These are areas in which the broader mental health services field could offer approaches and measures.

State, local, and grassroots efforts to reach out to veterans and provide access to community services are admirable. However, there may be no information about or oversight of the quality of those services. Increasing access to mental health services that are not beneficial is ultimately of little value to our country's veterans. It is important that such efforts include some attention to the quality of care that is provided.

An approach to quality improvement that merits attention is developing tools that can provide consumers with more information to evaluate the quality of community providers. One relatively easy approach would be to give veterans and their families information resources (e.g., Web-based educational resources, pamphlets, media campaigns) to learn about mental health problems and treatment and to help them select and access community providers who will provide effective treatments. A second, longer-range strategy to explore would involve designating certain network providers as being especially qualified to treat military servicemembers and families affected by combat stress-related mental and emotional problems. It could be accomplished in a variety of ways that involve different cost-benefit trade-offs: for example, from a formal training and certification program administered by DoD to an evaluation process that reviews existing documentation of experience and performance and results in TRICARE's designating certain providers as having special expertise.

Special Issues for Traumatic Brain Injury

We now turn our attention to the special issues associated with addressing traumatic brain injuries. We explore the differences in access and services available to servicemembers and veterans with traumatic brain injuries according to how their injury is detected (whether in-theater or post-deployment) and the level of injury severity. These two factors determine how the servicemember accesses the care systems available. We then discuss the barriers to receiving proper care, including documentation issues, common co-occurring problems of TBI, the need for qualified care managers, and the frequency of co-occurring emotional and behavioral problems. We describe treatments for traumatic brain injuries and summarize the scientific evidence about their effectiveness; we provide some perspective on quality of care by putting the current VA and DoD treatment guidelines for these conditions in the context of the evidence. We end with a review of some successful strategies for improving care.

Note that several other recent reports (besides this one) have addressed the identification and treatment of TBI among servicemembers. For example, the VA Office of the Inspector General released a Healthcare Inspection on the Health Status of and Services for Operation Enduring Freedom/Operation Iraqi Freedom Veterans After Traumatic Brain Injury Rehabilitation in July 2006 (Department of Veterans Affairs, 2006a). The Department of the Army created a Traumatic Brain Injury Task Force, which released its report to the Surgeon General in May 2007 and released a final report including updates on the status of recommendation implementation in January 2008. Additionally, the President's Commission on Care for America's Returning Wounded Warriors released a report in July 2007 that gave significant attention to TBI (PCCWW, 2007a and 2007b). We draw heavily on these existing reports with the goal of describing the services available, access, and barriers to care, while highlighting areas that need further research or attention—particularly gaps in access to and in quality of care (again drawing upon the model presented in Figure 7.1). It is important to note that many changes in the care systems for TBI are being planned, are in progress, or have already been implemented as a result of these earlier reports. We attempt to note this progress where possible. Further research and oversight will be necessary to accurately determine the extent and success of those changes over time.

Traumatic brain injury is an injury to the brain that may range in severity from mild (e.g., a concussion from exposure to a blast) to severe (e.g., a penetrating head wound). Often referred to as a signature wound of OEF/OIF, TBI poses special challenges for the military medical system.

Although accurate figures for the total number of servicemembers who have suffered a TBI are difficult to estimate, the Defense and Veterans Brain Injury Center (DVBIC) reported that, as of March 2007, 2,726 servicemembers had been reported to the DVBIC with a diagnosis of traumatic brain injury. Of these, 2,094 were classified as mild and 255 as moderate. Another 192 had severe traumatic brain injuries, and 171 had penetrating brain injuries (PCCWW, 2007b). Other reports indicate potentially higher rates of probable mild TBI: Of 35,000 otherwise-healthy servicemembers who were screened for TBI after deployment, 10 to 20 percent met screening criteria for mild TBI (PCCWW, 2007b). In our survey (see Chapter Four), 19 percent reported a probable TBI. These data suggest that, out of 1.64 million deployed, the number of servicemembers with mild TBI could be as high as 160,000 to 320,000 soldiers.

Issues regarding TBI identification, access to care, availability and quality of services, and barriers to care vary by severity of TBI and the method of returning home from deployment. Moreover, these two variables are related. Soldiers with milder cases of TBI typically redeploy home with their units. Those with moderate to severe cases (including penetrating head wounds) are more likely to be medically evacuated from theater to a military care setting. This latter group may also include individuals with mild TBI that co-occurs with other serious physical injuries.

The discussion below reflects this bifurcation. The first section relates to mild TBI—specifically, that among those individuals who redeploy with their units. The second section relates to moderate and severe TBI.

Mild TBI

Identification. DoD has been criticized for lacking a systemwide approach to the proper identification, management, and surveillance of individuals who sustain a mild TBI (U.S. Department of the Army, 2008). Until September 2007, there was no DoD-wide post-deployment screening for TBI. However, at that time, the Post-Deployment Health Assessment (PDHA) (DD Form 2796) and Post-Deployment Health Reassessment (DD Form 2900) were revised to include several questions related to TBI, including exposure to blasts, loss of consciousness, and symptoms of a probable TBI. Screening for TBI is now also included in revised versions of the Army's yearly physical health assessment. Although the addition of these questions will facilitate the identification of individuals with a probable TBI, the questions do not capture sufficient information on the injury itself (e.g., whether from blast exposure) or about the associated impairments to provide for adequate categorization of possible ongoing problems. DoD is attempting to improve in-theater documentation of exposure to TBI, however.

Currently available prevalence estimates of TBI among those who served in Afghanistan or Iraq come from those bases and medical facilities that have begun systematic screening of servicemembers. Landstuhl Regional Medical Center (a large Army medical facility through which virtually all medically evacuated servicemembers transit from Afghanistan and Iraq) screens everyone with a new injury, and Walter Reed Army Medical Center (a large Army trauma center that receives the majority of those medically evacuated from Landstuhl) screens everyone who may have been exposed. In addition, in April 2007 the VA began screening all OEF/OIF veterans who seek care within their system for a possible TBI (U.S. Department of the Army, 2008). Fort Carson (an Army base located in Colorado) has also instituted TBI-specific post-deployment screening in collaboration with the DVBIC; it screens 100 percent of soldiers returning from combat, as well as soldiers arriving from other posts (Pach, 2007). In addition to the standard questions asked on the Post-Deployment Health Assessments, Fort Carson also uses a TBI-specific screening form, which captures detailed information about events that may have caused a TBI during deployment. Soldiers who screen positive for TBI then have access to a wide range of specialty services. As of November 2007, Fort Carson was the only base with this level of universal screening in place.

The above estimate of 10 to 20 percent screening positive for probable TBI (PCCWW, 2007b) does not predict the number of servicemembers who need care, since the majority of mild TBIs do not require medical treatment. One challenge to identifying those who need follow-up may result from poor reporting of symptoms

upon redeployment. For example, Fort Carson's routine TBI screening of returning servicemembers found that a higher proportion of individuals reported symptoms of TBI after being home for several months than reported symptoms immediately after redeployment. This increase over time is likely attributable to three issues. First, soldiers may not be willing to disclose TBI symptoms at the time of the PDHA for fear of delaying their return home (Maugh II, 2007). Second, symptoms may be masked by the euphoria of returning home (Lorge, 2007). Third, TBI symptoms may be more apparent to soldiers or their loved ones after they have been out of the combat zone for several months (Pach, 2007). For these reasons, the inclusion of the TBI screening questions on the Post-Deployment Health Reassessment, which is typically implemented three to six months after returning from deployment, may help to ensure that the majority of individuals in need of follow-up for a possible TBI are identified.

An additional challenge in identifying and treating TBI among returning servicemembers is that many symptoms, such as anger, difficulty concentrating, and diminished interest, are characteristic of both TBI and certain mental health conditions, such as PTSD and major depression. Patients who have sustained a mild TBI may also have a mental health condition, and when they seek care for symptoms such as headache, irritability, sleep disturbance, and memory difficulty, those symptoms may be misattributed (U.S. Department of the Army, 2008; Hoge et al., 2008). Thus, the possibility of a misdiagnosis or an incomplete diagnosis is a concern because those who have not been identified as having a probable TBI may not receive appropriate treatment and rehabilitation services (Arlinghaus, 2007).

What Is the Gap in Access to Care? Screening positive for mild TBI does not necessarily indicate a need for treatment services. Of those who screen positive for mild TBI, between 60 and 80 percent will resolve without medical attention and are best served by receiving educational materials (Department of Veterans Affairs, 2004; Hoge et al., 2008). However, the remaining 20 to 40 percent may have significant long-term residual neurological symptoms and will require some form of medical or rehabilitative services.

How individuals with long-term symptoms access care depends in part on whether they are still on active duty or have separated from the military. If an individual is still on active duty, care would be received through the MTF, and appropriate referrals to specialty services would be given as necessary.

Regardless of severity, if a TBI-related disability is serious enough that a servicemember is no longer fit for duty, the individual may be separated or retired from the military. All servicemembers serving in OEF/OIF are eligible for five years of free care through the VA after separation from the military; however, without a disability rating, their priority for care will be low, potentially posing difficulty for accessing health services in a timely manner. Receiving a disability rating enables these separated servicemembers access to VA services well beyond the five-year period after military discharge, although conditions may apply depending on their resulting priority level

(see the section earlier in this chapter titled “Eligibility and Priorities for VA Health Services Guide Access”). A key challenge for individuals who may suffer from mild TBI to obtaining a disability evaluation and rating, however, may be documentation of exposure in theater and recognition of potential symptoms.

What Structural Factors Impede or Facilitate Access to Care for TBI? Many programs provide acute care for individuals with moderate and severe TBIs. However, the care and services for those with mild TBI rely more heavily on shorter-term outpatient care and rehabilitation. Returning servicemembers may receive care through the MTF (if continuing on active duty) and the VA (if separated military or deactivated Reserve Component), but seeking care for blast-related TBI may be more challenging for Reserve Component servicemembers who live far from a military or veterans’ medical facility. To address this disparity, the military established Community Based Health Care Organizations (CBHCOs), which coordinate ongoing general medical care for Reserve Component servicemembers. These organizations include a network of 18 sites that provide shorter-term care for TBI-related issues. They do not, however, focus on longer-term rehabilitation (Schraa et al., 2007).

In addition to medical facilities, there are over 1,000 local and national nonprofit organizations that assist injured servicemembers and their families with all levels of care, education, and support. Anecdotal evidence suggests that coordination between DoD or the VA and these organizations is limited at best (see Coordination of TBI care subsection for further details). It is unknown how many veterans or servicemembers are taking advantage of these services instead of or in addition to DoD or VA services to supplement gaps in coverage.

Another challenge is that quality⁷ can vary widely between these programs. Patients and/or their families noted minimal interdisciplinary communication; a lack of understanding of military-specific issues; and that, although many nonmilitary medical centers delivered high-quality care, they lacked understanding of issues unique to this population and did not have strong systems for supporting servicemembers (U.S. Department of the Army, 2008).

Given that these resources are used not only by individuals with mild TBI but by soldiers with moderate and severe TBI who have been discharged from VA facilities, coordination with other resources, whether community, state, or other federal systems, may be an important step in ensuring that all individuals with TBI receive needed services.

Barriers to Care. Although many barriers to care are shared by servicemembers with mild, moderate, and severe TBI, individuals with mild TBI also face a unique set of barriers to care. Below we highlight some of these issues.

⁷ *Quality of care for TBI* is defined as care that is concordant with TBI guidelines and practice standards that are based on the available evidence for effectiveness. However, there is limited evidence for quality of care for TBI relative to the evidence base for mental disorders. See Appendix 7.C, Table 7.C.12.

Medical Documentation. Currently, medical documentation is not standardized, making it impossible to reliably retrieve and update information related to an injured servicemember's treatment and prognosis over time and across systems of care (U.S. Department of the Army, 2008). Early and thorough documentation of the injury and immediate symptoms is particularly crucial in ensuring proper care for servicemembers, especially given the high turnover in many military units: Witnesses to the precipitating event may not be available at a later date to provide corroborating information. Without documentation, servicemembers who show subsequent behavioral changes or present with TBI symptoms at a later date may not have those changes attributed to their TBI, particularly if the servicemember has encountered legal problems or become involved in drug or alcohol abuse, according to a stakeholder interview. As a result of these secondary problems, personnel actions could result in the denial of access to DoD and/or VA services.

Co-Morbidity. Given that individuals with TBI are also likely to have mental health conditions (Trudel, 2007a), overlapping symptoms may make it more difficult to guide injured servicemembers to appropriate rehabilitative services. In addition, a common symptom of PTSD—lack of sleep—can also significantly affect TBI symptoms, such as memory problems, according to a stakeholder interview. According to the VA's mental health experts, "mild TBI can produce behavioral manifestations that mimic PTSD or other mental health symptoms and the veteran's denial of problems that accompany damage to certain areas of the brain often leads to difficulties receiving services" (Atizado, 2007, p. 3).

TRICARE Coverage of TBI Services. One barrier faced by servicemembers regardless of TBI severity is that TRICARE does not fully cover many TBI services. Former servicemembers with TBI who live far from a VA facility and cannot access the VA treatment and rehabilitation services may rely on TRICARE Prime or TRICARE Standard/Extra for medical coverage. However, TRICARE currently does not have a protocol for treating TBI, and most services are considered specialist services, subject to referral requirements.

Regional Variation and Lack of Community Providers. Another barrier faced by all servicemembers with TBI is regional variation in care. The VA's study on OEF/OIF veterans with TBI found that 48 percent of the patients believed that there were very few resources in the community to address the needs of individuals with a brain injury (Department of Veterans Affairs, 2006a). This belief may be due, in part, to the compensation structure for community providers. Some providers within the community feel that the government is not compensating them at a reasonable rate; as a result, they are not accepting or treating injured servicemembers, according to a stakeholder interview.

Moderate and Severe TBI

We now turn to issues related to TBI identification, access to services, TBI program quality, and barriers to care for individuals with moderate and severe TBI. As noted above, this section may also be relevant for those with mild TBI who were medically evacuated home due to another severe injury. We do not address issues of the most severely injured servicemembers requiring 24-hour care and support. Rather, our focus is on outpatient treatment and rehabilitative services; describing acute inpatient hospital care for severe TBI is beyond the scope of this study.

What Is the Gap in Access to Care? TBI occurs when the brain hits the inside of the skull. It can be caused by improvised explosive devices (IEDs), mortars, vehicle accidents, grenades, bullets, mines, and falls. As noted earlier, TBI can be difficult to diagnose. Symptoms can range from headaches, irritability, and sleep disorders to memory problems and depression (Department of Veterans Affairs, 2004).

Individuals with moderate and severe TBIs often require immediate medical care. According to a stakeholder interview, increasing concerns about TBI have resulted in new policies requiring that all those medically evacuated to Landstuhl or Walter Reed Army Medical Center be assessed for TBI. This assessment may include a neurological examination, brief cognitive assessment, and, if needed, additional assessments, such as neuroimaging. This assessment also helps to identify mild-TBI cases when TBI may not be the primary injury or reason for being medically evacuated.

Given the almost-universal screening for TBI among this population, the identification of individuals with TBI is more comprehensive and straightforward than for individuals with mild TBI who redeployed with their unit. At Walter Reed, approximately 29 percent of returning casualties are diagnosed with a TBI; about half of these are diagnosed with mild TBI and the others with TBI characterized as moderate, severe, or penetrating (U.S. Department of the Army, 2008).

What Structural Factors Impede or Facilitate Access to Care? Since the majority of individuals experiencing a moderate or severe TBI receive immediate medical care, their injury is readily documented in the medical record as service-related. Therefore, unlike servicemembers with a mild TBI, those who were medically evacuated home do not have the challenge of proving that their medical or rehabilitative needs are connected to a TBI incurred while in service. This documentation facilitates access to long-term and rehabilitative care from DoD and the VA (U.S. Department of the Army, 2008).

A Wide Range of TBI Services Is Available to Servicemembers. Many programs provide treatment, rehabilitative care, and case coordination within DoD, the VA, and the larger community. Individuals with moderate and severe TBI are eligible for and typically receive the most intensive services, which allow for gradual, extended treatment and the possibility of long-term support. This type of care targets cognitive functions, psychosocial elements, life skills, and social/vocational roles (Trudel, 2007b).

Below, we describe several specialty services or programs that may facilitate access to health care for servicemembers and veterans with moderate to severe TBI.

Polytrauma System of Care. Polytrauma is a term that includes TBI and other injuries that blast victims typically sustain, such as amputations, burns, hearing and vision problems, and psychological trauma. The VA's integrated Polytrauma System of Care provides medical, rehabilitation, and support services for injured veterans and active duty servicemembers. The system, which includes four Polytrauma Rehabilitation Centers and 21 Polytrauma Network Sites located across the country, is designed to provide access to life-long rehabilitation care for veterans and active duty servicemembers recovering from polytrauma and TBI (Feeley, 2007).

The VA's four Polytrauma Rehabilitation Centers are located in Palo Alto CA, Richmond VA, Tampa FL, and Minneapolis MN. Staff include multidisciplinary teams of specialists in psychiatry, rehabilitation nursing, neuropsychology, psychology, speech-language pathology, occupational therapy, physical therapy, social work, therapeutic recreation, prosthetics, and blindness rehabilitation (Department of Veterans Affairs, 2007m). Specialized services include comprehensive acute rehabilitation care for complex and severe polytraumatic injuries, emerging consciousness programs, outpatient programs, and residential transitional rehabilitation programs (Feeley, 2007). In 2007, staffing for the Polytrauma Rehabilitation Centers was increased to respond to patient demand and to enhance coordination of care and support for family caregivers.

The 21 Polytrauma/TBI Network Sites, designated in December 2005, are the second level in the Polytrauma System of Care. Each Polytrauma Rehabilitation Center houses a Polytrauma Network Site, and there are 17 additional Network Sites (Department of Veterans Affairs, 2007m). Overall, there is one Network Site within each of the VA's 21 service areas (Feeley, 2007).

The TBI Network Sites provide specialized, post-acute rehabilitation in consultation with the Rehabilitation Centers. They also provide proactive case management for existing and emerging conditions and identify local resources for VA and non-VA care. In March 2007, the Polytrauma System of Care network was expanded to include two new components of care: Polytrauma Support Clinic Teams and Polytrauma Points of Contact. Geographically distributed across the VA, 75 Polytrauma Support Clinic Teams facilitate access to specialized rehabilitation services for veterans and active duty servicemembers at locations closer to their home communities (Feeley, 2007). These interdisciplinary teams manage the care of patients with stable treatment plans, providing regular follow-up visits, responding to emerging medical and psychosocial problems, and consulting with their affiliated Polytrauma Network Site or Polytrauma Rehabilitation Center when more-specialized services are required (Feeley, 2007).

The remaining 54 VA Medical Centers have an identified Polytrauma Point of Contact. The Point of Contact is responsible for managing consultations for patients

with polytrauma and TBI and for assisting with referrals of these patients to programs capable of providing the appropriate level of services (Feeley, 2007).

Patient management is a key component to ensuring coordination of patient services in the Polytrauma System. The VA assigns every patient a care manager, who maintains scheduled contacts with veterans and their families to coordinate services and to address emerging needs. VA social worker or nurse liaisons are located at ten Military Treatment Facilities. The VA also has benefit liaisons located at the commonly referring MTFs to give patients and families an early briefing on the full array of VA services and benefits (Feeley, 2007). “Case management is also a critical function in the polytrauma system of care and it’s designed to ensure lifelong coordination of services for patients with polytrauma and TBI” (Sigford, 2007).

Defense Veterans Brain Injury Center. Since 1992, DoD has partnered with the VA and the civilian sector to operate the DVBIC. One of the DVBIC goals is to ensure expert case management and individualized, evidence-based treatment to each patient in order to maximize function and decrease or eliminate TBI-related disability. Working across agencies, the DVBIC provides outreach, educational resources, and treatment services to help each TBI patient return to duty, work, and the community. The DVBIC has recently been reorganized within the newly established Defense Center of Excellence for Psychological Health and Traumatic Brain Injury. Through the DVBIC, DoD and VA treatment sites have access to similar educational resources for servicemembers and veterans with TBI, as well as training materials for those providing their care.

Servicemembers Can Receive Care in Multiple Systems, Depending on Their Level of Need. Individuals suffering more-severe TBI often require more-intensive rehabilitation. Such individuals generally receive acute care through DoD (for example, at the National Naval Medical Center). DoD and the VA have agreed that patients with moderate to severe TBI, or mild TBI with co-occurring mental disorder or severe injuries, may access care through VA polytrauma centers while remaining on active duty (Veterans Health Administration, 2006). They may also be sent to specialized civilian inpatient treatment facilities. The VA has a long history of providing specialized rehabilitation services, and its facilities have traditionally been equipped to address long-term rehabilitation needs. In 2007, DoD also began equipping its facilities and providers for long-term rehabilitation needs. Since servicemembers with severe TBI may receive care for their injury across all three sectors—DoD, the VA, a civilian facility, or a combination of these—more-intensive case management and care coordination is required, particularly if the soldier transitions back and forth between systems (especially if he or she remains on active duty during the rehabilitation period).

In addition to receiving medical care through MTFs and the VA, servicemembers with moderate to severe TBI are also eligible for a range of DoD-wide and service-specific programs and support services (detailed below). Eligibility for most programs requires that the injury be incurred after September 10, 2001, *and* that the injury was

sustained in combat or training for combat. Many further restrictions may be placed on the timing and duration of program support relative to either the nature of injury or time since separation from service.

Other Programs and Services Also Offer Support. Other, more-specialized programs and services have also been developed for servicemembers with TBI or other severe injuries. Each is described briefly below.

- *Center for the Intrepid.* A privately funded state-of-the-art rehabilitation center located next to the Brooke Army Medical Center in Texas. Built to provide care for servicemembers who sustained injuries in OEF and OIF, it also serves other injured veterans. The Center emphasizes multidisciplinary treatment teams (Wilson, 2007).
- *Wounded Warrior Program* (Army). Provides personal recovery services for severely wounded soldiers and assists and advocates for wounded soldiers and their families through counseling and support (U.S. Department of the Army, 2007).
- *Marine for Life Injured Support* (Marine Corps). Helps marines, sailors, and their families with case assistance and coordination and provides advocacy and education on issues of TBI and related benefits (U.S. Marine Corps, 2005).
- *Safe Harbor* (Navy). Provides personalized support and assistance to severely injured sailors and their families (U.S. Navy, 2007b).
- *Palace HART (Helping Airmen Recover Together)* (Air Force). Provides individualized personal support to airmen with combat-related illnesses or injuries resulting from Operations Enduring Freedom and Iraqi Freedom (Military.com, 2007a).
- *Military Severely Injured Center.* This specialty service under the Military OneSource contract provides support and augmentation of the severely injured programs of the various services. In addition, it supports families and serves as a safety net for injured servicemembers by providing Counselor Advocates.
- *Community Based Health Care Organizations.* CBHCOs arrange ongoing general medical care for Army Reserve Component servicemembers. They also include a TBI network of 18 sites that provide shorter-term care for TBI-related issues, but they do not focus on longer-term rehabilitation (Schraa et al., 2007).

Whereas the military TBI programs highlighted above emphasize treatment, case coordination, and support for more severely injured servicemembers, a number of community-based facilities focus on treatment, rehabilitation, and long-term support for patients with TBI and their families. Although the federal system has no quality control over these civilian facilities, some have established histories of working with DoD and the VA. Two examples include the Scripps Rehabilitation Center and Lakeview:

- *Scripps Rehabilitation Center.* An accredited Brain Injury Day Treatment Program that has had experience providing rehabilitative care to non-combat-injured servicemembers for over ten years. In 2006, the program expanded to include specialized rehabilitation for combat brain-injured military personnel with mild TBI. Over 70 percent of Scripps' treated patients return to their units (Lobatz, Martinez, and Romito, 2007).
- *Lakeview.* With 14 residential and community-integrated programs across five states, Lakeview's specialized neurobehavioral and community-integrated rehabilitation programs focus predominantly on the care of adults with neurobehavioral diagnoses (typically brain injury-related) who have not succeeded as outpatients or with in-home supports and who require treatment, supervision, and support related to their significant cognitive and/or behavioral challenges. Physical-disability issues also are addressed.

The services described above focus primarily on more-intensive treatment and rehabilitation needs, but individuals may recover to the point that they no longer need such services. If so, their care and needs are similar to those described above for mild TBI and, when there are concerns regarding variation in quality, cost, and lack of long-term coordination with DoD or the VA, they may rely on a combination of military and civilian providers. In particular, active duty patients who recover sufficiently to return to their duty stations may have trouble finding rehabilitation (Department of Veterans Affairs, 2006a).

Coordination of TBI Care. The coordination of care for individuals with TBI can present a serious challenge. As noted, many with moderate to severe TBI have other injuries as well. Further, many soldiers who receive TBI care at VA Polytrauma Centers remain on active duty, which means that they must simultaneously navigate both DoD and the VA health systems. A final, often-overlooked, challenge is that, without care coordination and case management, injured servicemembers and their families are left to navigate these systems alone. Doing so may be particularly challenging, given that the servicemembers may be cognitively or emotionally impaired and their families may have a limited understanding of the systems. Each of these issues suggests an increased need for effective care coordination and case management (George, 2007).

Care Managers. TBI patients with moderate to severe TBI often have long-term cognitive and behavioral sequelae, such as memory loss and disruptive behavior, requiring long-term care management to coordinate their care (Department of Veterans Affairs, 2006a). Without specific guidelines for care managers, variation across facilities and across levels of care remains (U.S. Department of the Army, 2008). Injured veterans can have multiple care managers concurrently (see Barriers to Care subsection below). It can be difficult for TBI patients to know whom to contact, when, and about what issue. The DVBIC has a TBI-specific care-coordination system in place for those who have been medically evacuated more recently; however, servicemembers who were

discharged before this program was initiated may still lack care coordination, according to a stakeholder interview.

Within the VA health care system, every patient now seen in one of the Polytrauma Rehabilitation programs is assigned a care manager who is responsible for coordination of all VA services and benefits and maintains contact with the patient and the families (Sigford, 2007). However, of the patients interviewed by the VA in their health care inspection for OEF/OIF veterans with TBI, only 65 percent said that they were in contact with someone in the VA who was coordinating their care; of those, 68 percent “were able to name that person or to specifically describe that person’s position” (Department of Veterans Affairs, 2006a, p. 22).

Patients and families told VA inspectors that “the effectiveness of individual case managers ranged from outstanding to poor,” and gave examples of excellent, invaluable assistance from case managers, as well as problems navigating the system, such as getting reimbursed, discharge planning, making appointments, and getting accurate information (Department of Veterans Affairs, 2006a, p. 26). The VA inspection also found that “case managers do not consistently coordinate the care of active duty patients following discharge from Lead Centers,” and that “long-term case management for patients already retired from the military is inconsistent” (Department of Veterans Affairs, 2006a, p. 35). In fact, case managers at two of the Lead Centers reported using no tracking system for following patients after discharge (Department of Veterans Affairs, 2006a). Obstacles that the case managers themselves reported included limited ability to follow patients after discharge to a military facility or a remote living environment; difficulty in securing long-term placements of TBI patients with extreme behavioral problems; lack of adequate transportation and other resources, such as dental care, support groups, and interim housing; and inconsistency in long-term case management (Department of Veterans Affairs, 2006a).

According to at least one source, public attention and increased funding have led the system from inadequate care management to the other extreme, with multiple care managers and an excess of services that are poorly integrated. Some patients have multiple care managers at a time. Another challenge is a lack of qualified candidates from which to fill open care-management positions. In particular, there is a severe shortage of Certified Rehabilitation Registered Nurses, who are often used as highly skilled care managers for complex polytrauma cases, according to a stakeholder interview. As a result, there is often considerable variation in the qualifications of and quality of care from managers.

Severely wounded patients and their families need a single point of contact who is able to help coordinate all aspects of the recovery process: benefits, the disability-rating process, linking up with community programs, financial aid, transition between services and off of active duty, transportation issues, psychological support for the family, and so on (PCCWW, 2007b). Many services are available, but families and patients are often unaware of either the range of available services or how to access the

necessary assistance. Both DoD and the VA are aware of these challenges, and they have responded with a number of intraservice and interservice initiatives (see above under Other programs and services also offer support subsection). However, problems of duplication of services and challenges navigating the road to recovery may remain (George, 2007). To address case management, the PCCWW has recommended that patient care be managed by Recovery Coordinators employed within the U.S. Public Health Service's Commissioned Corps (PCCWW, 2007b). The Recovery Coordinator program is now being implemented for severely injured servicemembers; it will serve most new moderate to severe cases of TBI.

Coordination with Other Resources. Many individuals recover to the point that they no longer need intensive treatment and rehabilitation services. However, they will likely need continued support, ranging from a few weeks of cognitive therapy to transitional community reentry services (U.S. Department of the Army, 2008). Through the DVBIC, DoD has established a working relationship with Virginia Neuro Care (a nonprofit organization that provides rehabilitation to individuals with brain injury) and Lakeview Brain Injury Programs. However, the partnership has yet to expand to a larger network of providers that could complement the existing acute rehabilitation services offered by the DoD and VA health care systems (George, 2007).

Barriers to Care. Despite a range of treatment and rehabilitative services for TBI, not all injured servicemembers are receiving appropriate services (Department of Veterans Affairs, 2006a; U.S. Department of the Army, 2008; PCCWW, 2007b). Below, we highlight access barriers most relevant to moderate and severe TBI.

Regional Variations. Inpatient care for TBI is available within the VA polytrauma systems of care; however, access to outpatient care shows more variation. One challenge pertains to regional variation in the availability of services and financing of those services. For example, while private neurobehavioral programs and private Community Integrated Rehabilitation programs may be available to supplement the care that the VA provides, they are not available in all locations. Further, these services may not be covered by TRICARE, Medicare, or Medicaid, although many states have instituted Medicaid waiver programs to address these needs within the civilian population (Trudel, 2007b). Therefore, where servicemembers live may significantly affect whether they can access covered services. According to a stakeholder interview, efforts are being made to better integrate civilian facilities into the TRICARE system to address the needs of those requiring specialized rehabilitation.

Delays in Receiving TBI Rehabilitation Services. There are also concerns about the amount of time it can take to get an appointment through the VA. For example, VA patients have a substantially longer median length of time from injury to initiation of comprehensive TBI rehabilitation than a similar group of patients in Model Systems, a community health care provider (6.1 weeks for the injured veterans tracked in the VA study versus 2.7 weeks for Model Systems) (Department of Veterans Affairs, 2006a). This disparity is particularly important because delaying comprehensive rehabilita-

tion may negatively affect long-term outcomes. It is not clear whether the longer time from injury to beginning of rehabilitation reflects more-severe injuries, which require extended acute care, or the necessity of transferring between the DoD and VA health care systems.

What Cultural and Personal Factors Impede or Facilitate Access? While issues related to identification, access, services, and barriers were separated above by TBI severity, most cultural and personal factors—including stigma, knowledge and attitudes, and peer and family influences—affect all servicemembers with TBI regardless of severity level. Therefore, below, we discuss these issues for all TBI patients, noting variations by severity when applicable.

Military Culture and Negative Attitudes About Seeking Care. How military culture and personal attitudes and beliefs about care function may be different for those with mild TBI from those with moderate or severe TBI. As we have noted earlier, symptoms of mild TBI are often “invisible,” and there is a great deal of overlap between the symptoms of mild TBI and PTSD. Thus, the perceived consequences associated with having a mental health condition (e.g., revocation of security clearances, inability to receive promotions or hold certain positions, accusations of malingering, and fears of being viewed as “weak-minded” or incompetent) may also be applicable to those with mild TBI.

In addition, according to a stakeholder interview, the military culture emphasizes toughness and unit cohesion and discourages soldiers from admitting to injuries. Regardless of symptom severity, military servicemembers may be concerned about the effect of traumatic brain injury on their military careers. Since soldiers with symptoms of brain injury will be sent home from Iraq or Afghanistan, the desire to stay with their peer group may encourage them to cheat on tests designed to detect brain injuries.

Many military servicemembers believe that mild TBIs, or concussions, can be easily “shaken off,” as is done often with sports injuries, according to a stakeholder interview. This view is supported in part by the fact that many mild-TBI symptoms resolve themselves in a short time without treatment. However, some individuals may experience persistent and disabling symptoms that will not resolve on their own, so that personal attitudes about seeking help and military culture may inhibit individuals from receiving the benefits of treatment. At a town hall meeting on TBI, for example, soldiers mentioned that they fear ridicule from their peers and do not want to admit that they have a problem that could end their careers (Pach, 2007).

A related issue is that other individuals equate “traumatic brain injury” with brain damage or with being in a vegetative state, according to a stakeholder interview. This perception of traumatic brain injury is equally problematic, because it has implications for whether an individual will recognize that he or she needs treatment or believes that the treatment will be beneficial. Despite the importance of identifying and diagnosing individuals with mild TBI, one stakeholder interview suggested that there is a danger of pathologizing a condition that may heal without medical intervention because indi-

viduals' strongly held negative beliefs about their prospects of recovery may play a part in maintaining their TBI symptoms and reduced functioning (Jones, Fear, and Wessely, 2007).

Knowledge and Attitudes About TBI. A poorly understood fact is that TBI is typically classified by the severity of the initial injury and is not usually reclassified as the patient improves. This can be confusing to patients, families, and commanders, who may see one servicemember with mild TBI who has persistent debilitating symptoms, while another servicemember with severe TBI has recovered to a higher level of functioning than the counterpart with mild TBI (U.S. Department of the Army, 2008).

Another issue is the vast amount of official and nongovernmental information about TBI prevention, treatment, rehabilitation, and family assistance available for soldiers, their families, units, and care teams. However, that vastness may be overwhelming or inaccessible to soldiers suffering from TBI and their families. Furthermore, not all of the information is appropriate; literature needs to be targeted to the level of disability and the phase of recovery. Materials about severe TBI should not be given to those with a mild concussion, and long-term care/family-burnout materials should not be given to people at the beginning of a program (according to a stakeholder interview). Additionally, media outlets often misinterpret TBI data, and successful recoveries from TBI are not widely publicized (U.S. Department of the Army, 2008).

Cognitive Impairment. The most common cognitive consequences following moderate to severe TBI are problems with attention and concentration and deficits in new learning and memory (Department of Veterans Affairs, 2004)—problems that can make it more difficult to understand what types of rehabilitation are needed and then to schedule and keep appointments. Additionally, servicemembers with severe levels of brain injury “are compromised in their ability to navigate their environments and the systems needed to make forward progress along the recovery continuum” (George, 2007, p. 4). These cognitive problems emphasize the need for competent, engaged case managers who can assist veterans and their families in navigating those systems and ensuring that they seek and receive all needed care.

Emotional Problems. Emotional difficulties following a brain injury include increased anger, lowered frustration tolerance, increased anxiety, depression, and low self-esteem (Department of Veterans Affairs, 2004). All of these emotional issues can make it more difficult to schedule appointments, travel to those appointments, navigate check-in procedures, sit in waiting rooms, and participate fully and actively in rehabilitation activities. For some patients, going to facilities being used by people of varying levels of disability can increase anxiety, either by increasing fears that they are destined to be more disabled or adding to the frustration that they have not progressed further.

Disciplinary Actions That Inhibit Eligibility for VA Services. Some symptoms of TBI, such as irritability, outbursts, difficulty concentrating, memory deficits, and sleep problems, can also lead to disciplinary actions when soldiers have not been properly

diagnosed (according to a stakeholder interview). Therefore, it is essential that exposure to a TBI be properly documented as soon as possible after the event, should symptoms not become apparent until a later time. Behavioral problems manifesting upon return from deployment may indicate the need to screen for TBI. Accurate diagnosis is crucial because, if disciplinary problems are severe enough, servicemembers can be dishonorably discharged from the military, which causes veterans to be ineligible for many military and VA benefits.

Family. Families of those who have suffered a TBI will likely need psychosocial support, as well as resource and logistical support to ensure that they can facilitate their loved one's gaining access to quality services. Family members are often heavily involved in caregiving and provide advocacy, supervision, direct care, and behavior management, which can be emotionally draining, particularly when the recovery process is variable and unpredictable. In addition, they may have to move to be closer to their loved one. Families may also have difficulty accessing expert resources in rural areas of the country, and they may have to quit their jobs to care for a loved one, which may curtail not only the financial resources of the family but also their employer-sponsored health care benefits (U.S. Department of the Army, 2008). In response to these and other issues, the VA has recently announced that it will provide nearly \$4.7 million for "caregiver assistance pilot programs" to improve resources and education available to those who assist disabled veterans in their homes (Department of Veterans Affairs, 2007j).

The TBI Task Force has recommended reviewing the benefits packages provided by TRICARE, the VA, and other state-level organizations and advocacy groups providing medical assistance to determine an optimal uniform package (U.S. Department of the Army, 2008). Additionally, family members provide approximately 80 percent of all long-term services and support for family members in their homes (Seaton, 2007). There is a great need for more financial and other support for family members, and the Task Force has recommended that additional resources be provided for family members who have chosen to leave their jobs to care for a servicemember, including considering providing health insurance to family members who provide full-time care to an injured service member or veteran (U.S. Department of the Army, 2008). Both the VA Healthcare Inspection (Department of Veteran Affairs, 2006a) and the PCCWW (2007a and 2007b) also recommend improving financial and other support for family members of injured servicemembers. However, to date most of these recommendations have not been implemented.

Also of note, there are significant regional differences in the average disability compensation from the VA (GAO, 2007c). These differences, such as the varying disability ratings and payments within DoD, can significantly govern whether injured servicemembers and their families have available financial resources to actively pursue the best care.

What Is High-Quality Care for TBI?

Delivering quality care to TBI patients remains a major challenge. There is limited research about the effectiveness of treatments for patients with TBI. At present, the only TBI treatment recommendation with strong support in the research literature is that steroids should not be used to manage increased intracranial pressure in this population.⁸ Table 7.5 briefly summarizes the guidelines that are elaborated upon in Appendix 7.C. Because relevant research is so limited, much of currently practiced TBI rehabilitation and medical management is not evidence-based practice but rather is based primarily on expert opinion. The current VA/DoD guidelines for TBI incorporate the limited evidence from the literature with expert opinion. More research is urgently needed to establish evidence-based practice guidelines, particularly in the area of rehabilitation.

For several reasons, implementing quality-improvement initiatives for the treatment of TBI is more difficult than implementing such initiatives for PTSD or major depression. First, TBI requires both traditional medical treatment and mental health care. Second, as noted earlier in the chapter, TBI symptoms include symptoms of PTSD or other mental health conditions. Thus, providing care to address the full spectrum of symptoms requires a number of different professionals from physical medicine and rehabilitation to mental health. In addition, addressing TBI requires both acute care for the injury and long-term or chronic care for any associated impairments. A

Table 7.5
Summary of TBI Guidelines

Guideline	Source	Evidence Base
TBI Treatment	Panel of 22 experts assembled by the Brain Trauma Foundation et al. (2007)	Comprehensive electronic database searches of the neurotrauma literature; each study independently reviewed by two experts for level of evidence/confidence
TBI Rehabilitation	Turner-Stokes and Wade (2004); Cochrane review (Turner-Stokes et al., 2007)	Review of the scientific literature
Clinical Practice Guidelines and Recommendations	Defense and Veterans Brain Injury Center, Working Group on the Acute Management of Mild Traumatic Brain Injury in Military Operational Settings (2006)	Expert opinion and some randomized outcome studies
Training Guidelines	None available	Not applicable

⁸ We conducted a literature review to establish the evidence base for current TBI treatments, using the relevant online databases. A detailed discussion of our review process and findings appears in Appendix 7.C.

third unique aspect is the need for close coordination across the VA/DoD with other community services and agencies.

Because addressing TBI requires a variety of professional disciplines, across specialty areas and sectors of care, another challenge to ensuring quality of care comes from structural and system factors that may inhibit coordination and integration. Druss (2007) noted that poor quality in mental health care originates from a complicated array of system factors. These system factors include four causes of separation between mental and medical health services. The first is geography, because specialists may not all be collocated in the same facility. The second is financing: Different systems are funded through independent streams. A third factor is organization: Information and expertise are not shared across the different systems. Fourth, the culture of the care paradigm can be a cause of poor care. For example, a focus on particular symptoms of the biological disorder rather than using a patient-centered approach that elicits patient needs and preferences as part of the treatment plan can potentially erode the quality of services. These problems are likely to be similar for TBI, and they can perhaps be compounded by the complexity of medical and rehabilitative needs and the necessity of accessing multiple systems of care to address those needs.

Despite these challenges, several quality-improvement initiatives for TBI are under way. However, to date, few of these efforts have been evaluated. Some of the efforts under way or planned take advantage of approaches that have been used for improving chronic illness care, including that for mental health problems. One model that is particularly promising for TBI is the use of integrated team-based care. In fact, the GAO report (PCCWW, 2007a) recommended integrated care management as an improvement over the fragmented case-management system that is generally used to help servicemembers navigate the different systems of care. The advantages of integrated care management are its comprehensive, patient-centered approach to evaluation by a multidisciplinary team of physicians, nurses, mental health professionals, rehabilitation and vocational rehabilitation specialists, social workers, and other allied health professionals, depending on need.

The TBI experts whom we interviewed also suggested that TBI patients would have better treatment outcomes with comprehensive treatment from a multidisciplinary team. In fact, preliminary work is finding that patients who received more-intensive rehabilitation have better outcomes than those who receive less-intensive services, and there is no evidence that there can be too much rehabilitation (Trudel, Nidiffer, and Barth, 2007; stakeholder interviews).

Multidisciplinary teams are efficacious in maintaining patients in post-acute rehabilitation (Sander et al., 2001). This treatment approach (Malec and Basford, 1996) is guided by four general principles: (1) educating patients about strategies to compensate for residual cognitive deficits, (2) providing environmental support (e.g., housing at treatment locations, transportation, family involvement) to maximize patient functioning, (3) offering counseling and education to address personal and family adjust-

ment, and to improve accurate self-awareness, and (4) focusing initially on simulated activities in the clinic with a transition to productive community-based activities.

A UK study of outreach by multidisciplinary teams (Powell, Heslin, and Greenwood, 2002) was successful in yielding improvement in self-organization, psychological well-being, personal care, and cognitive functioning. That intervention, which used multidisciplinary teams made up of occupational therapists, a physiotherapist, a speech and language therapist, a clinical psychologist, and a half-time social worker, provided individualized care through community visits for two to six hours per week.

The Presidential Commission on Care of America's Returning Wounded Warriors (PCCWW, 2007a, p. 5) made several recommendations relevant to quality improvement. One recommendation was for creating "comprehensive recovery plans to provide the right care and support at the right time in the right place." One way to do this is to install "Recovery Coordinators" to work with existing case managers. These coordinators manage different aspects of care, including engaging family members, arranging for support programs, and serving as advocates for servicemembers across systems of care, including getting them timely services. This role would require coordination across different departments, benefits programs, and across sectors of care (public and private). The Commission also recommended that DoD should establish a network of public and private-sector expertise in TBI and partner with the VA to expand the network for TBI treatment in order to address the problem of poorly coordinated community services.

Although implementing such a program for military personnel may encounter many practical challenges, similar programs have succeeded in the civilian sector. However, civilian successes have been based on smaller-scale implementation, largely within a health system. Given the scope of services provided in DoD, implementing such a program in the military would present additional organizational challenges. Nevertheless, as summarized earlier in this chapter, models of improving care for chronic illness, such as the Improving Chronic Illness Care approach (ICIC Web site), which incorporates the role of a care manager in a collaborative approach to coordinating care, to improve the quality of care for diabetes, depression, and heart failure, are worthy of consideration.

More recently, there is evidence that models of care based on this chronic-illness model can also improve outcomes for people with serious mental disorders (Simon et al., 2005). These studies suggest that, with appropriate adaptation to the military culture, a collaborative model of recovery (Lester and Gask, 2006) may also succeed in improving care for servicemembers with TBI. However, many individuals with TBI do not view their illness as chronic. Rather, a social model of illness that emphasizes aspects of recovery and quality of life (e.g., returning to work and regaining family relationships) is more consistent with the nature of the injury and associated consequences (Lester, Tritter, and Sorohan, 2005).

Integrated teams are already in use at some military medical facilities. For example, the Center for the Intrepid at Brooke Army Medical Center in San Antonio is developing a unique program for TBI that uses integrated teams of specialists (e.g., occupational therapists, physiatrists) to treat TBI. These different specialists do not see patients sequentially but together as a team. Although there is no evidence yet for its effectiveness, such a program has the potential to improve TBI care, and future evaluation data will be important for understanding any challenges faced in implementing team-based care, if any, and, it is hoped, to what extent such teams can be successful (Ian Coulter, personal communication).

Fort Carson is currently implementing a “One Stop Health Shop” program that draws upon many of the lessons from other areas, as well as from the various committee recommendations (Terrio, Prowell, and Brenner, 2007). The objectives of the program are to improve customer service, provide comprehensive care using a multidisciplinary approach, enhance communication, and centrally track TBI. The program increases access for patients, who can schedule an appointment or walk in without an appointment. Much like the patient-registry component of the chronic illness care model, all patients are screened for TBI and their information is collected in a database and updated regularly. The interdisciplinary provider team works together to perform the screening and implement a treatment plan. All patients who screen positive for TBI are given an educational handout that explains symptoms and access to care. Those with current symptoms are seen “on the spot” in the TBI clinic and assessed. They are followed up within two weeks and, if clinically indicated, are given a more immediate referral. The provider team also meets regularly to discuss cases. The TBI Task Force Report notes that this project is being expanded to other installations and that population needs may lead to enhanced or reduced versions of that model (U.S. Department of the Army, 2008).

Summary of Gaps and Recommendations for TBI Services

Key gaps and recommendations differ for those with mild TBI and those with more moderate to severe TBI or TBI associated with other severe injuries. Regardless of severity level, almost all treatments and services for TBI lack a strong evidence base. Thus, continued research on what treatment and rehabilitation are most effective is needed.

Mild TBI. For mild TBI, key gaps in access to services arise from failures to identify individuals with probable TBI and poor documentation of blast exposure. Factors that contribute to this gap include inconsistent screening practices, personal and military cultural factors (reluctance to admit weakness or shirk responsibilities to the unit and mission, fear of negative career consequences), the similarity of mild TBI symptoms to acute stress reactions and mental health conditions, and possible delayed emergence of symptoms. DoD and the VA are attempting to improve both screening for and documentation of probable TBI. The program at Fort Carson may function as an example

of a comprehensive program that provides both screening and follow-up diagnostic and treatment services.

There are potential negative consequences of under-identification for both affected individuals and for the military. These individuals may lack sufficient recovery time and be at higher risk for cumulative effects of repeat exposure to blasts. They may also experience TBI-related problems in their work performance or social behavior. Military servicemembers may not recognize or understand the nature of their cognitive problem, and others, including family, friends, and supervisors, may misinterpret problems. If TBI-related impairments emerge later or persist over time, it can be difficult to establish the relationship of the impairment to a service-related injury, which may in turn delay or limit access to appropriate rehabilitation services.

To address these issues, DoD has focused on improving cognitive assessment both pre- and post-deployment and improving documentation of exposure to blasts. Additionally, the VA has instituted systemwide screening for all OEF/OIF veterans who seek care for any health issue at a VA facility. Illinois has also developed a state initiative to offer screenings for all veterans and provide mandatory screening for Illinois Army National Guard servicemembers.

Another area for improvement is the development of appropriate strategies and materials to educate the military community, service providers, and families about mild TBI. Materials developed for more-severe brain injury can misguide or unnecessarily alarm those suffering from only mild TBI. Military leadership, medical providers, servicemembers, and families need to understand signs and symptoms of mild TBI and the importance of documentation, general guidelines in the management of mild TBI, and the expected course of TBI-related impairments and recovery. The Defense Veterans Brain Injury Center has been increasing its outreach and training to meet this need.

Moderate and Severe TBI, or Mild TBI with Other Severe Injuries. Those with moderate to severe TBI face different gaps in care. Their injuries typically involve complex needs for treatment and supportive and rehabilitative services that change over time. Particularly problematic are transitions from the DoD Military Health System (where acute inpatient care is delivered), to the VA health care system, in which the highly specialized and comprehensive polytrauma services are located. A number of problems have been identified and are the focus of joint DoD-VA improvement efforts, including failures in the transfer of medical information and other relevant documentation from DoD to the VA; duplicative, discrepant, and unreliable processes for determining disability ratings; inadequate coordination of care across the two systems; and perceptions that active duty personnel can languish in the system while they wait on the decision for a return to duty or medical discharge (Department of Veterans Affairs, 2006a; Independent Review Group, 2007; PCCWW, 2007a; U.S. Department of the Army, 2008).

The types of services needed by those with TBI and co-morbid physical injuries are complex. Treatment planning must be individually tailored and requires that patients and/or their family caregivers understand the plan and follow through with appointments and recommendations, which can be particularly challenging for patients with TBI, especially those with severe cognitive impairments. Accordingly, the principles of patient-centered care that have been applied within the primary care civilian sector may be particularly relevant for TBI. These models suggest that, to improve quality of care, it will be important for TBI services to orient care around each specific patient's preferences and needs.

Care coordination is also important to ensure access to needed services, and lack of it has been a key gap in the provision of quality care. As described above, DoD has begun implementing a number of initiatives to improve TBI care through care coordination. The VA has also announced plans to quickly hire and expand capacity to provide care coordination. It will be important to assess whether these efforts are successful in assisting veterans with TBI and their families with access to needed services.

The vision put forth in the PCCWW Report to train professionals for managing support program services and to serve as patient advocates through recovery coordinators would likely be an effective way to restructure care for TBI. This program is now being implemented. However, to properly implement such system change, the training of these Recovery Coordinators will be critical. Coordinators will need to understand not only DoD and VA guidelines for the effective treatment of TBI but also have a clear comprehension of eligibility for services and programs in both systems of care and how to access them. Finally, coordinators will need automated tools and databases, ongoing supervision, continuing-education support, and the authority to be effective in this role (e.g., "authority to tap all resources necessary to implement each patient's Recovery Plan" [PCCWW, 2007b, p. 22]).

Another important gap is VA and DoD coordination with community-based services outside the MTF and the VA. For many veterans, access to community-based services is desirable, because they live distant from a VA or MTF. Traveling long distances to a VA hospital for frequent rehabilitation visits, for example, may not be feasible for many veterans who need these services. Theoretically, VA care coordinators could assist veterans in identifying and accessing appropriate community services, but it is not clear whether care coordinators will have available to them the necessary information about community-based services that would enable them to provide assistance. State initiatives, like that in Rhode Island, may fill this key gap through local planning efforts that provide coordination across DoD, the VA, and local community service providers to meet the needs of local servicemembers, veterans, and their families.

A key challenge to expanding DoD and VA capacity to meet the needs of those with TBI is hiring qualified staff and providing appropriate training, supervision, and oversight. No systematic study of this issue is available, but a number of our informants representing health provider organizations noted the difficulty of identifying

and attracting qualified staff to open positions in TBI specialty areas, including rehabilitation (according to stakeholder interviews). It may be necessary to increase incentives to attract qualified applicants to VA or DoD positions, and/or to increase incentives for community-based providers to provide specialty care targeted to OEF/OIF veterans.

Appendix 7.A: Approach to Interviews with Administrators and Providers

Overview

The RAND study team conducted 30 telephone interviews with health policy leaders and direct-care providers of health services for OEF and OIF veterans suffering from PTSD, major depression, and TBI. The interviews were conducted from October to December 2007. The objective of these interviews was to better understand the availability, accessibility, and capacity of existing programs and services to address these needs in servicemembers with mental health and cognitive conditions.

Design and Procedure

Interviews were voluntary and lasted up to 45 minutes. A team of two researchers participated in each interview; one member of the interview team led the conversation, and the other documented the respondents' answers on a laptop computer in real-time to increase the accuracy of the interview record. The research team debriefed immediately following each interview while the information was fresh, to achieve consensus regarding what was conveyed during the interview; they modified the notes accordingly.

Sample and Participants

Our objective was to talk with a broad range of high-level individuals who set mental health policies and direct mental health care at national and local levels within the Departments of Defense and Veterans Affairs. To capture perspectives from a range of policymakers and providers, we used a two-pronged strategy to obtain the interviews. Recognizing that service delivery will depend on the structure of services, we identified key policymakers from each system of care (military, TRICARE, and VA). Once we identified key mental health leaders, we asked them to identify potential providers to interview. We interviewed 20 program managers/policymakers and seven direct-care service providers across the DoD and VA. We also interviewed three additional leaders of community-based organizations (one nonclinical counseling provider, one private organization director, and one community organization leader). The 30 completed interviews represent a participation rate of 58 percent of the 52 individuals contacted.

Interview Content

We used the interviews to expand our knowledge of the mental health treatment and services that are available and the extent to which they are consistent with best practices in caring for PTSD, major depression, and TBI. The interview included questions about the extent to which clients suffering from the targeted problems are seen and what is done to help them. We also asked about what educational materials are available and given to clients.

Analysis

Once all interviews were completed and documented, the qualitative team reviewed them to identify both *common themes* that prevailed across systems of care and also *unique themes* that pertained only to a particular system. Findings from these interviews are integrated into the relevant sections of Chapter Seven.

Appendix 7.B: Summary of Focus Groups with Military Servicemembers and Spouses

The RAND study team conducted a series of focus groups with military veterans from OEF and OIF and their spouses during November 2007. Groups were conducted with participants in three U.S. cities, each with a strong military presence (Oceanside, CA; San Antonio, TX; and Washington, DC). The objective of these groups was to elicit feedback about challenges faced and health care service needs for the psychological and cognitive injuries resulting from deployment to the conflicts in Afghanistan and Iraq.

Focus Group Methods

Participant Recruitment

We recruited participants from the communities surrounding one Army base and one Marine base. We also identified family members, guardsmen, reservists, and veterans through local chapters of national member associations. Our main source for recruiting was through contact information that was obtained from military servicemembers who agreed to be recontacted by the study team to participate in other aspects of the study, at the close of the telephone interviews conducted for our survey (described in Chapter Four). We supplemented this list of potential participants with names of those who responded to flyers distributed by military and military family-member organizations in the areas surrounding Camp Pendleton (CA) and Fort Hood (TX). Groups of military servicemembers may have included both active duty and retired servicemembers, as long as they did not mix component or branch of Service (for Active Component only) and rank. We did not seek volunteers with mental health conditions or TBI, nor did we ask about these conditions specifically.

Design

To maximize homogeneity and, in turn, comfort with discussing the sensitive topic, groups were stratified by three characteristics: (1) component and branch of Service (Active or Reserve Component; Army or Marine Corps), (2) rank (noncommissioned officer [NCO] and officer or junior enlisted), and (3) role (military member or spouse). We recognize the importance of eliciting feedback from all possible groups; however, circumstances precluded our studying them all. Therefore, we emphasized obtaining data from those populations most affected by the current deployments, because soldiers and marines are far more likely to be deployed for combat duty in Afghanistan and Iraq. We conducted a total of nine groups: four Marine Corps groups (by rank and type of participant), four Army groups (also by rank and type), and one group of Army Reserve Component members (Reserve and Guard personnel). We also convened a tenth discussion/feedback group made up of military fellows currently at RAND.

The last group included a multi-Service mix of officers from the Army, Air Force, and Marine Corps. Although not all members of this group are OEF/OIF veterans, these officers provided a valuable exchange, given their analytic expertise and insights into military culture.

Group Process

Each of the ten groups lasted up to two hours and had between three and eight participants. Groups were co-moderated by two members of the research team, with one person taking detailed notes. After obtaining verbal informed consent, we audiotaped the group discussion, with permission from all group members, to ensure accurate note-taking. Tapes were destroyed after the discussion was documented and vetted by the research team. At the end of the discussion groups, participants were compensated for their time and for incidentals, such as transportation and childcare.

Discussion Content

The focus group discussions were structured in three sections. First, we explained the study objectives and focus group procedures, including oral consent and rules, after which we allowed for brief introductions so that people would feel more comfortable. Second, we elicited and then summarized the different signs and symptoms associated with each of the key disorders we were targeting (PTSD, TBI, and major depression) to familiarize participants with the subject matter. Third, we asked participants about where they would typically go to seek care if they were experiencing these signs and symptoms of stress (or where they would recommend that someone go for help). We probed for where they would go for information (e.g., the Internet, the VA), whether they would seek direct services on base or within the civilian sector, and how they would pay for such services. We asked them about the types of health care and mental health services that would be helpful to them and what types of barriers, if any, they might face in obtaining services. We also asked about the materials they received post-deployment and whether those materials included anything about mental health services. Finally, we showed participants drafts of educational materials designed to provide information about PTSD, major depression, and TBI for servicemembers and their family members (Meredith et al., 2008a, 2008b) and asked for their feedback. In particular, we asked them whether the materials were helpful, whether they would keep/use them, and whether they liked the content and format.

Analysis

Following each group, the note-taker listened to the audiotape to supplement notes. The moderator then reviewed the notes and added further information to produce final documentation of the discussion. Once all groups were completed and documented, the qualitative team reviewed the notes to identify both common themes that prevailed regardless of group characteristics and also unique themes that pertained only to par-

ticular groups. This information was used to inform our review study by providing the military-member and family perspectives regarding available services and satisfaction with mental health care.

Results

Participant Characteristics

Of the 71 recruited, 46 servicemembers and spouses of personnel (65 percent, not including military fellows) participated in the nine focus groups, in addition to the five RAND military fellows, for a total of 51 participants. Table 7B.1 shows the characteristics of each group. Because of the greater difficulty in recruiting military spouses than servicemembers, groups with servicemembers were larger.

Signs and Symptoms

Some of the most common types of reactions that participants talked about were difficulty readjusting to family life, hyperalertness, sleep problems, and anger. All the groups discussed family readjustment as a challenge, regardless of branch, rank, or type (personnel, spouse, or RAND military fellow). One marine in the higher-rank group characterized this sentiment as, “it’s hard to come back and be thrown into a family situation.” Returning personnel had difficulty being around children. For example, a spouse of a junior enlisted marine told us that, “He was so used to being surrounded by all military people; he started treating everyone around him like marines, including our small children. . . .” Another spouse (Army NCO/officer) said that she “needed to

Table 7.B.1
Size and Gender Mix of Focus Groups

Group Description	Number of Participants	Gender Mix
Junior Enlisted (E-1–E-6)		
Marines	8	All male
Marine Spouses	5	All female
Army Personnel	7	All male
Army Spouses	3	All female
Senior Enlisted (E-7–E-9)/Officers		
Marines	6	All male
Marine Spouses	3	All female
Army Personnel	7	All male
Army Spouses	3	All female
Army Reservists/ Guardsmen	4	1 female, 3 male
RAND Military Fellows	5	1 female, 4 male
Total	51	16 female, 35 male

buffer the kids from her husband for the first 30–40 days.” An Army officer noted that, “My wife was tired and ready for me to take over, but I wasn’t.”

Hyperalertness was explained as being part of the job when in Iraq or Afghanistan. One marine (NCO/officer) participant found himself outside patrolling his yard in the middle of the night in pajamas with his weapon. Others spoke of needing their weapon by them when they sleep. The adrenaline is so high for returning military that they avoid situations that drive it up. For example, we were told by several marines that situations such as amusement parks and driving are difficult for the first few months. Symptoms of anxiety also make loud noises (including those from small children) difficult to take. One marine summed it up: “4th of July will never be the same again.”

Related to hyperalertness is problems with sleep. All personnel groups and several spouse groups talked about difficulty getting to sleep and staying asleep. One Army spouse (NCO/officer rank) said, “My husband didn’t sleep for six months.”

Some participants also mentioned a number of symptoms commonly associated with depression and anxiety.

Anger issues were also prevalent among these focus group participants. Soldiers and marines mentioned the problem of aggressive driving, lack of patience, and becoming frustrated easily. When asked about when counseling for anger problems might be helpful, one soldier replied:

If I had to take an anger class right after returning, that would piss me off.

Spouses reported their soldiers and marines “snapping” at the kids and noted that

. . . they know how to interact with [family], but for everyone else, it’s hard for them. They go off at the simplest things.

Uniquely, members of the Reserve Component spoke less of symptoms and changes and focused more on issues of being isolated upon return from deployment. For example, they all noted that they had little support from their civilian employer. They also mentioned that many are not deployed in units so do not have the cohesion of a group to identify with or have access to a buddy system when they return home.

Coping

Participants reported both avoidant and active forms of coping. Some of the commonly reported strategies that involved avoidant coping were to postpone dealing with their emotional and behavioral problems. For example, all of the Marine Corps groups and several of the Army groups said that they initially covered up any problems so that they could get back to their lives at home. One marine said, “I lied on my post-deployment forms. Whatever got me back to my family quicker . . .” Another common theme in most of the personnel groups that was echoed was to keep busy as a method of coping. Although this form of coping can be seen as negative in terms of postponing or avoid-

ing dealing with problems, it also can be seen as positive in that keeping busy means spending more time with family, in traveling, physical activity, or faith-based activities. One servicemember said that, “If you don’t stay busy, you can fall into a trap.” Some military personnel further identified self-medication with alcohol as a means of coping with the anxiety and sleep symptoms described above. All of the military-personnel groups mentioned drinking heavily initially upon returning. The military fellows echoed this perception, noting that binge-drinking is the norm for about a week, “and if they live through that, they come back.”

Some of the other active ways that people coped were to “talk to your buddies” and to seek professional help, either through a counselor or chaplain. However, all groups across the board tended to be more reluctant to talk to professionals for fear of negative consequences, including being perceived as weak and losing career opportunities. As described by one junior enlisted soldier:

In my battalion, if you go to see mental health, you’re the weak guy, the weak gal. I took leave to see a counselor based on everything I went through over there. My unit doesn’t have knowledge, but my commander said I have PTSD . . . there’s a stigma. A brand new guy goes over at 18, comes back feeling 40. He worries about promotion. They still view it negatively, going to see a mental health care provider.

Communication

The key communication themes observed through the focus group discussions were that marines and soldiers prefer to talk to other marines and soldiers who have had similar experiences. In addition, while military personnel also relied heavily on communication and interaction with immediate family members (wife and kids), especially for the first few weeks, they did not think that it was as helpful as talking with “war buddies”:

You could talk to mom or wife or force someone else to talk to me but they haven’t shared the same experiences that his buddies have.

Participants, particularly the junior enlisted and therefore younger marines and soldiers, also talked about using the Internet to chat and blog about their experiences. This seemed to be a good outlet because of its anonymity. In fact, one person in the Reserve Component group characterized technological communication as a means of avoiding stigma in the chain of command:

[Stigma] would vary by chain of command. It’s totally different people now so wouldn’t feel comfortable.

Using blogging—blogging helps a lot of people. There’s a lot of blog sites/bulletin boards of people who have been through the VA/military system.

Even military spouses preferred to talk with other military wives to whom they can relate. Several spouses of marines mentioned that the “key volunteers” (military wives designated to support other military wives) available for informal support can be helpful, although more so if those wives have had their spouses deployed. Accordingly, they are less comfortable talking with health professionals.

Mental Health Services and Barriers

In terms of access and quality of mental health services, participants had a mixture of experiences. Some had experience with using community counselors through TRI-CARE. Both Marine Corps and Army spouses said that they had sought care from community providers because they were told that the military hospitals were overbooked.

Many participants knew about and had accessed services from Military OneSource. While Military OneSource was seen as a definite option, one Army enlisted participant thought that its utility was not well understood: “Everyone knows that OneSource exists, but no one knows how to use it or what it does.”

There was little discussion about receiving mental health services from the military health system, only about the potential for perceived stigma and negative consequences on careers (including loss of a security clearance) if they did seek care from that source. Some of the concerns related to stigma are illustrated by quotes from these three servicemembers:

[Soldier, NCO/Officer] Anything to do with mental health in the military, the chain of command is going to know. If you're on certain medications, it will kick the clearance back.

[Soldier, Enlisted] If you want to get confidential care, you need to go off post. Otherwise, they will find out.

[Marine, Enlisted] It's supposed to be confidential, but that never works. It goes up the rank.

The VA came up infrequently during the discussions. However, one Army spouse mentioned the VA outreach center, which “is a great thing.”

Several military personnel and also military spouses talked about getting help from chaplains, but the extent to which chaplains were helpful was perceived as mixed. Some of the problems with chaplains include their being in short supply, their lack of support across religious preferences, and their limited knowledge about mental health issues.

Finally, while some participants found counseling to be helpful, several had negative experiences.

More-detailed information and results are available from the authors.

Appendix 7.C: Evidence-Based Practices

This appendix provides information about the evidence-based practices currently available for the treatment of post-traumatic stress disorder, depression, and traumatic brain injury. We review the evidence base for treatment of each condition in turn, including a definition of the problem, a description of available treatments, evidence for each type, and an evaluation of the evidence underlying existing treatment guidelines.

Post-Traumatic Stress Disorder

Definition. *Post-traumatic stress disorder* (PTSD) is an anxiety disorder that occurs after a traumatic event in which a threat of serious injury or death is experienced or witnessed and to which the individual's response involved intense fear, helplessness, or horror. A further distinction is sometimes made between PTSD and Acute Stress Reaction (ASR) and Combat or [Ongoing Military] Operational Stress Reaction (COSR). *ASR* is a severe but transient disorder that develops in an individual in response to exceptional physical or mental stress. Symptoms are usually minimal after about three days. *COSR*, also known as battle fatigue or battle shock, is any response to battle stress that renders a soldier unable to remain on duty.

Literature Review. We conducted a literature review to find studies focusing on the treatment of PTSD, ASR, and COSR. We used PubMed (MEDLINE), PsychINFO, and GoogleScholar and limited our searches to English-language articles from 1998 to the present. We also found additional references within the papers and included some of those references that we thought would provide additional background information, regardless of the year of publication.

We used the following search terms: “treatment”; “early intervention”; “prevention”; “services”; “adult”; “symptoms”; “post traumatic stress disorder”; “combat stress reaction”; “combat stress”; “combat anxiety”; “anxiety”; “ptsd”; “partial post traumatic stress disorder”; “partial ptsd”; “battle fatigue”; “stress exposure training”; “stress training”; “anxiety”; “combat stress control units”. Our searches also included combinations of terms.

When possible, we selected articles that focused on treatments among a military population; however, we also reviewed the literature focusing on civilian populations. Overall, we reviewed 22 treatment-outcome studies, 14 meta-analyses⁹ and reviews, and three sets of treatment guidelines.

Treating PTSD

Prevention and Management. Many different therapies have been used to treat veterans diagnosed with PTSD. But few treatments are available *before* symptoms may

⁹ A *meta-analysis* is a study that reviews outcome studies in a particular area and assesses how small or large the effect size of each outcome is. *Effect size* provides information about how much change is evident across all studies and for subsets of studies.

arise, and little research has been done on primary prevention—in the case of soldiers, *before they are deployed*. Some work has shown that cognitive-behavioral therapy can be used to target PTSD early on for people who may have experienced discrete events (e.g., an accident) (Bryant et al., 1998; Ehlers and Clark, 2003). There is also recent evidence that propranolol can help decrease the likelihood of a physiological response when thinking about trauma if it is administered fairly early after the trauma has taken place. Thus, propranolol could be used as a pharmacological preventive effort to potentially attenuate the psychophysiological response to trauma (Pitman et al., 2002). However, further research is needed with larger samples and longer-term follow-up of patients.

Battlemind is a program developed by the Walter Reed Army Institute of Research that is currently being provided for all soldiers when they return from deployment and again three to six months later. The goal of Battlemind is to help soldiers identify whether they are experiencing symptoms that may require additional help. The Institute is currently preparing a pre-deployment version of Battlemind. The evidence-based treatments that are discussed in this monograph (e.g., cognitive-behavioral therapy, pharmacotherapy) are treatments that could be provided either during deployment or post-deployment.

Types of Treatment. To organize our discussion of PTSD treatment, we use the treatment types described by Foa, Keane, and Friedman (2000b), who also assessed the level of evidence in the literature for each type of treatment.

Foa, Keane, and Friedman (2000b) wrote the article “Guidelines for the treatment of PTSD,” in which different therapies were rated from Level A to Level F according to a literature review of studies that conducted trials to examine the efficacy of these different therapies:

- *Level A:* Evidence is based on randomized, well-controlled clinical trials for individuals with PTSD.
- *Level B:* Evidence is based on well-designed clinical studies, without randomization or placebo comparison for individuals with PTSD.
- *Level C:* Evidence is based on service and naturalistic (non-experimental) clinical studies, combined with clinical observations that are sufficiently compelling to warrant use of the treatment technique or to follow the specific recommendation.
- *Level D:* Evidence is based on long-standing and widespread clinical practice that has not been subjected to empirical tests on PTSD.
- *Level E:* Evidence is based on long-standing practice by circumscribed groups of clinicians that has not been subjected to empirical tests on PTSD.
- *Level F:* Evidence is based on recently developed treatment that has not been subjected to clinical or empirical tests on PTSD.

Table 7.C.1 provides information from this review.

Table 7.C.1
Level of Evidence for the Different PTSD Treatments

Type of Therapy	Evidence Base
Exposure therapy	Level A, based on 12 studies as of 2000. Overall, effective in treating PTSD. 5 of 6 studies conducted with Vietnam veterans found positive effects, and four of these were well-controlled studies.
Systematic desensitization	Level B and Level C, based on 6 studies as of 2000. Most studies have methodological problems. Some found that SD was effective, whereas other studies did not. 4 of 5 studies were conducted with Vietnam veterans, but these were not well-controlled studies, and many used a large number of sessions over a long period of time.
Stress inoculation training	Level A, based on 2 well-controlled and 2 less well-controlled studies as of 2000. SIT was effective in all 4 studies; however, SIT has been conducted only with female sexual-assault survivors. Efficacy with other trauma populations is not established.
Cognitive therapy	Level A, based on 2 well-controlled studies as of 2000. CT was effective. Studies were conducted with civilian trauma survivors. CT has not been tested with veterans.
Cognitive processing therapy	Level B, based on 1 published study as of 2000. CPT effective, but conducted only with female sexual-assault survivors. A recent study by Monson and colleagues (2006) conducted CPT with veterans and compared them to a wait-list control group. CPT decreased PTSD symptoms and co-morbid symptoms in relation to the wait-list control group.
Assertiveness training	Level B, based on 1 less well-controlled study as of 2000. Conducted with female sexual-assault survivors, and no differences were found between AT and comparison treatments. Has not been tested with veterans.
Biofeedback and relaxation training	Not rated. As of 2000, only one study examined BIO in a controlled design. BIO was not supported because the comparison was more effective. Relaxation is generally utilized as a control treatment and has been found to be less effective than comparison treatments in 4 studies. Thus, BIO and relaxation training are not rated.
Combo treatments	There is no evidence that combination treatments are more effective than their single components.

Table 7.C.1—Continued

Type of Therapy	Evidence Base
Pharmacotherapy	<p>Level A and Level B for SSRIs [fluoxetine (A); paroxetine, fluvoxamine (A/B)].</p> <p>Level A and Level B for MAOIs [phenelzine (A/B); moclobemide (B)].</p> <p>Level A for TCAs (imipramine; amitriptyline, desipramine).</p> <p>Level C for antiadrenergic agents (clonidine, guanfacine, propranolol).</p> <p>Level B for anticonvulsants (carbamazepine, valproate).</p> <p>Level B and Level C for benzodiazepines [alprazolam (B); clonazepam (C)].</p> <p>Levels B–F for other serotonergic agents [nefazodone (B); trazodone (C); cyproheptadine, buspirone (F)].</p> <p>Level F for antipsychotics [thioridazine, clozapine, risperidone (F)].</p> <p>There are multiple studies in this area, making it difficult to provide general conclusions for each drug. Some evidence suggests that efficacy for SSRIs is stronger for civilians than for Vietnam-veteran cohorts and that TCAs may be more effective with Vietnam-veteran cohorts than with civilian cohorts.</p>
Psychological debriefing	<p>Neither one-time nor individual PD can be advocated as being able to prevent the subsequent development of PTSD following a traumatic event.</p>
Eye-movement desensitization and reprocessing	<p>Levels A and B, based upon 12 studies as of 2000.</p> <p>There is stronger evidence for EMDR among people with single-event civilian trauma than on war veterans who have endured multiple traumas. Support for EMDR does not imply support for the role of eye movements. Randomized dismantling studies (which assess the components of a treatment individually) provide little support that eye movements are critical to the effects of EMDR.^a</p>
Psychodynamic therapy	<p>Level A to Level D based on 3 empirical studies and numerous clinical studies as of 2000.</p> <p>There are few empirical investigations of psychodynamic therapy. Single or small-series case reports make up most of the evidence for this treatment.</p> <p>There was only one Level A investigation with people with PTSD. Results indicated greater improvement among those who received PT than hypnosis and desensitization.</p> <p>A Level B study of 37 combat veterans indicated positive results for those who participated in PT compared with a volunteer sample of veterans who received no treatment.</p>
Hypnosis	<p>Level C, based on one study as of 2000.</p> <p>Only one study from 1989 showed that hypnosis decreased intrusion and avoidance symptoms. It was conducted with 112 people who were diagnosed with PTSD based on DSM-III. The majority of patients had experienced the loss of a loved one.</p> <p>Two recent studies found that a CBT-hypnosis group did not report greater clinical gains overall than a CBT group (Bryant et al., 2005; Bryant et al., 2006).</p>
Psychosocial rehabilitation	<p>Level C as of 2000 (based on naturalistic and clinical observations).</p> <p>There was little Level A or B research as of 2000; however, techniques used in PR, such as education and skills training, have been supported by Level C studies (e.g., naturalistic studies and clinical observations). Currently, PR techniques are suggested to be an adjunct to other forms of treatment for PTSD. These techniques have been used with people who have PTSD and could have included veteran populations.</p>

Table 7.C.1—Continued

Type of Therapy	Evidence Base
Group therapy	<p>Levels A, B, and C, based on 14 studies as of 2000. Studies ranged from Level A—randomized control (2), Level B—nonrandomized control design (5), and Level C—single-group designs in which pre and post differences were examined (7). Positive treatment outcomes were reported in most studies, lending general support to the use of group therapy with trauma survivors. Treatment outcomes do not at present favor a particular type of group therapy.</p> <p>Most studies have been conducted with female sexual-assault survivors. One study conducted with 11 male Vietnam veterans found positive results.</p>
Marital and family therapy	<p>Level D, based on clinical practice as of 2000. There are few empirical investigations of MFT for PTSD. There is one Level B dissertation study with a very small sample of veterans. Improvements were seen for both veterans and spouses, and MFT is recommended as a technique to be utilized in conjunction with other techniques designed to address PTSD more directly.</p>
Inpatient treatment	<p>Levels B through F as of 2000. Inpatient treatment typically incorporates many different interventions and utilizes longer stays (2–12 weeks) rather than crisis admissions. There is limited research in this area. 13 Level B studies have been conducted with small convenience samples of veterans, and only 3 had comparison groups. Overall, findings suggested that moderate-length specialized programs, ranging from 2 to 12 weeks, and general psychiatric units are more effective than long-term specialized programs. However, these findings could be due in part to shorter-term stays being associated with crisis admissions and crisis resolving, whereas longer-term stays involved planned admissions with fewer initial symptoms.</p>

NOTES: MAOI = monamine oxidase inhibitor; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant.

^a There is some controversy in the literature regarding the efficacy of EMDR and the use of the saccadic eye movements. The Institute of Medicine committee reviewed several studies of EMDR and concluded that the evidence did not adequately support its efficacy (Institute of Medicine, 2007). A review by Perkins and Rouanzoin (2002) emphasizes that the treatment effects of EMDR are larger and longer-lasting than placebo effects in PTSD. The efficacy of EMDR has also been supported in two large meta-analyses in this area (Sherman, 1998; van Etten and Taylor, 1998). What is not conclusive, however, is the role of eye movement; further empirical validation is needed (Perkins and Rouanzoin, 2002). There is also mixed opinion about whether EMDR is a unique form of therapy or a derivative of CBT (Hamblen et al., 2006).

The four basic kinds of treatment for PTSD, ASR, and COSR are as follows:

1. Cognitive-behavioral treatments (e.g., exposure therapy, cognitive processing therapy)
2. Pharmacotherapy
3. Psychological debriefing
4. Other treatments (e.g., imagery rehearsal therapy, psychodynamic therapy, hypnosis).

Below, we briefly describe each type of treatment and summarize available evidence about its effectiveness.

Cognitive-Behavioral Therapy (CBT). CBT combines elements of cognitive and behavioral approaches, and it emphasizes changing biased patterns of beliefs and modifying harmful behavior. CBT is the treatment approach with the most research supporting both its immediate and long-term effectiveness. It relieves symptoms during an acute episode, and over time it can help to prevent future episodes. CBT treatment for PTSD is structured (the therapist usually has an agenda for each session) and time-limited.

There are eight different kinds of CBT-related therapies for PTSD. They are typically used as separate treatments (e.g., 15 sessions of exposure therapy), although some studies have examined combinations of treatments (see number 8 below).

1. *Exposure therapy (EX)*: Exposure therapy is a type of behavior therapy in which the patient confronts the feared situation, object, thought, or memory; the exposure is continued until the anxiety is reduced (Rothbaum et al., 2000). This therapy has been used with Vietnam veterans and female sexual-assault survivors, and for a mixed variety of traumas. There is a great deal of evidence from well-controlled trials that supports the use of exposure-based therapy (Foa, Keane, and Friedman, 2000b; Institute of Medicine, 2007).
2. *Systematic desensitization (SD)*: SD is a form of exposure therapy that teaches relaxation skills in order to control fear and anxiety. The patient is exposed gradually to objects or situations that are typically fear-producing. The goal is to reduce or eliminate fears that people may find distressing or that impair their ability to manage daily life. Few well-controlled trials of SD have been conducted. Thus, SD has not received strong support and “has largely been abandoned in favor of exposure without relaxation” (Courtois and Bloom, 2000; Foa, Keane, and Friedman, 2000b, p. 559).
3. *Stress inoculation training (SIT)*: SIT is a form of cognitive-behavioral therapy tailored to the needs of an individual patient. Its goal is to help patients add to their repertoire of coping skills and to use existing skills more effectively. Four studies found SIT to be effective when used with female sexual-assault survi-

vors; the efficacy of SIT with other trauma populations has not yet been established (Foa, Keane, and Friedman, 2000b).

4. *Cognitive therapy (CT)*: Cognitive therapy postulates that dysfunctional thinking patterns produce pathologic emotions that can lead to psychiatric disorders. These thinking patterns can lead the person to feel anxious or depressed in situations in which these emotions are unwarranted (Foa, Keane, and Friedman, 2000a). Cognitive therapy is focused on the present. Skills involve identifying distorted thinking, modifying beliefs, relating to others in different ways, and changing behaviors (Beck Institute Web site). CT is typically used for depression. Two controlled studies of CT found that it was effective in reducing post-trauma symptoms (Foa, Keane, and Friedman, 2000b).
5. *Cognitive processing therapy (CPT)*: CPT incorporates cognitive therapy and exposure therapy (Rothbaum et al., 2000). It is usually conducted in 12 sessions, which systematically build the client's skills to deal first with the traumatic event itself and then with its effects in other areas of life. CPT is designed specifically for female sexual-assault survivors; however, a recent study by Monson and colleagues (2006) used CPT with veterans and found that veterans who received CPT had fewer PTSD symptoms and related symptoms compared with a wait-list control group.
6. *Assertiveness training (AT)*: AT is a method of psychotherapy that reinforces people for stating negative and positive feelings directly. People are helped to be assertive rather than passive or aggressive in talking to others about their assaults, in asking for social support, or in correcting misinformation (Rothbaum et al., 2000). One poorly controlled study tested AT with female sexual-assault survivors and found no difference between AT and comparison treatments. Thus, more support is needed for this treatment (Foa, Keane, and Friedman, 2000b).
7. *Biofeedback (BIO) and Relaxation training (RT)*: BIO is a complementary- and alternative-medicine approach that measures a subject's bodily processes, such as blood pressure, heart rate, skin temperature, galvanic skin response (sweating), and muscle tension, and conveys that information to the individual in real-time to increase awareness and control of the related physiological activities. Biofeedback allows users to gain control over physical processes previously considered automatic (Foa, Keane, and Friedman, 2000b). RT involves training individuals in deep breathing and progressive muscle relaxation to remove tension and negative emotions (Thompson, 2004). There is little evidence that either BIO or RT is effective in treating PTSD (Foa, Keane, and Friedman, 2000b).
8. *Combined SIT/EX, combined EX/Relax/CT, and combined CT/EX*. Combination approaches have received support; however, the combination treatments do not appear to be more effective than their single-component treatments (Foa, Keane, and Friedman, 2000b).

Pharmacotherapy. A variety of drug treatments has been used for PTSD, including tricyclic antidepressants (TCAs), monoamine oxidase inhibitors (MAOIs), and selective serotonin reuptake inhibitors (SSRIs). The strongest evidence to date is for antidepressant medications, particularly SSRIs (Davis et al., 2006; van Etten and Taylor, 1998); however, overall effects for SSRIs, even in the largest clinical trials, are modest (Keane, Marshall, and Taft, 2006). The (British) National Institute for Health and Clinical Excellence (2005) report on several trials of SSRIs (e.g., paroxetine, fluoxetine) indicated inconclusive evidence that these drugs reduce severity of PTSD symptoms. Recent research suggests that serotonin-noradrenaline reuptake inhibitors (SNRI; venlafaxine, milnacipran, and duloxetine) are at least as effective as SSRIs across the range of anxiety disorders, including PTSD. Further research is needed in this area (Baldwin, 2006).

Benzodiazepines do not appear to have any advantages over other drugs in treating PTSD. Antipsychotic agents are also not recommended (Davis et al., 2006). Overall, SSRIs tend to be more effective in treating the intrusive symptoms of PTSD (nightmares, flashbacks, etc.) than avoidance symptoms according to self-report, but not observer-rated measures (van Etten and Taylor, 1998). In addition, there is a problem with attrition in many of the pharmacotherapy studies; approximately 32 percent of participants drop out by post-test (van Etten and Taylor, 1998). Table 7.C.2 contains data from Seedat and colleagues (2006) summarizing pharmacotherapy trials for different drugs and the overall effect of these medications on the participants' quality of life (QOL). Table 7.C.3 from Davis and colleagues (2006) summarizes effects of long-term (>14 weeks) pharmacological treatment for PTSD. Two recent studies have shown that Prazosin, a brain-active alpha-1 adrenergic receptor antagonist, is effective in reducing nighttime PTSD symptoms and sleep disturbance in both civilian (Taylor et al., 2007) and veteran (Raskind et al., 2007) samples.

The results of this review of the pharmacotherapy literature pertaining to PTSD treatment are in accordance with those found by the Institute of Medicine committee, which reviewed 37 pharmacotherapy studies and determined that treatment efficacy cannot be determined from the current study findings (Institute of Medicine, 2007).

A few studies have examined the effect of combining psychotherapy and drug treatments (Humphreys et al., 1999; Mark et al., 1996; Marshall et al., 2003). Overall, findings suggest that combining these two types of treatment can help patients reduce their depression, anxiety, and PTSD symptoms (Humphreys et al., 1999); however, further study is needed.

Psychological Debriefing (PD). Most researchers consider PD to be a single-session semi-structured crisis intervention designed to reduce and prevent continued anxiety and distress following traumatic events. PD focuses on helping people process their emotions by normalizing emotional reactions to trauma.

The quality of the studies of PD is poor, including the randomized controlled trials. The studies provide little evidence that early PD prevents psychopathology fol-

Table 7.C.2

Overview of 12-Week Acute Randomized, Controlled Treatment Studies in Patients with Post-Traumatic Stress Disorder Reporting Positive Effects on Quality of Life (QOL) and Functional Measures

Study (no. of patients)	Treatment	QOL/Functional Measure	Mean-Change Score		
			Active Drug	Placebo/ Active Comparator	<i>p</i> -value for Change; Difference Between Groups
Malik et al. (16)	Fluoxetine vs PL	SF-36 mental subscale score	44	20	<0.01
		SF-36 vitality subscale score	35	10	<0.05
		SF-36 social-functioning subscale score	38	12	< 0.05
Brady et al. (187)	Sertraline vs PL	Q-LES-Q	11.7	3.3	0.004
Rapaport et al. ^a	Sertraline vs PL	Q-LES-Q	12.0 (<i>n</i> = 64)	5.2 (<i>n</i> = 67)	0.010
		SF-36 emotional role functioning subscale score	25.9	3.7	0.002
		SF-36 mental health subscale score ^b	14.5	3.4	0.032
Tucker et al. (307)	Paroxetine ^c vs PL	SDS	7.2	4.6	0.007
Marshall et al. (551)	Paroxetine vs PL	SDS	7.0 (20 mg/day) 6.4 (40 mg/day)	4.5	< 0.02 (for both dosages)
McRae et al. (26)	Sertraline vs nefazodone	SDS	Sertraline 7.2 Nefazodone 7.5		0.0007 ^d

SOURCE: S. Seedat, C. Lochner, B. Vythilingum, and D. Stein. Disability and quality of life in post-traumatic stress disorder: Impact of drug treatment. *Pharmacoeconomics*, Vol. 24, No. 10, 2006, Table 1, p. 994. Used with permission.

NOTES: PL = placebo; Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire; SDS = Sheehan Disability Scale; SF-36 = Medical Outcomes Study Short Form 36-item.

^a Data from two pooled studies. There were 285 and 131 patients in the Q-LES-Q and SF-36 analyses, respectively.

^b Patients without co-occurring depression (there were no significant treatment differences in these domains in patients with co-occurring depression).

^c Flexible dose.

^d Time factor (no significant differences between the two treatment groups on any of the eight outcome measures employed in the study; however, significant effect for time in both groups on all eight outcome measures, including QOL).

Table 7.C.3
Long-Term Studies of Pharmacotherapy for Post-Traumatic Stress Disorder (PTSD)

Drug	Design and Duration	Objective	No. of Patients	Patient Disposition	Results/Outcome	Reference
SSRIs						
Sertraline	Open-label; 24wk (36wk cumulative)	Rate of sustained responder status or conversion to responder status during long-term treatment	128	Participants on sertraline in a 12wk double-blind, placebo-controlled, randomized trial	Significant improvement in PTSD; response rate = 74%. 92% acute-phase responders maintained response; 8% lost response. 54% acute-phase nonresponders converted to responder status; 46% did not convert.	Londborg et al., 2001
Sertraline	Double-blind, placebo-controlled, randomized; 28wk	Relapse rate and time to relapse with long-term treatment vs. discontinuation	96	Responders from a 24wk open-label maintenance trial	Sertraline group reported significantly lower rates of relapse, discontinuation due to lack of clinical response, and acute exacerbation compared with placebo.	Davidson et al., 2001
Sertraline	Pooled analysis; 64wk	Effects of long-term treatment vs. discontinuation on QOL and overall function	369	Participants from three previous studies; 12wk double-blind placebo-controlled, randomized trial, 24wk open-label trial, and 28wk double-blind, placebo-controlled randomized trial	Marked improvement in QOL and overall functional impairment. 58% of the sertraline responders achieved QOL within 10% of community norms. Recurrence in PTSD and decrease in QOL with treatment discontinuation.	Rapaport et al., 2002
Paroxetine	Open-label; 9mo.	Effects of long-term treatment on PTSD, memory, and hippocampal volume	28	Outpatients: 11 from a 12wk double-blind, placebo-controlled, randomized trial	Mean 54% reduction in CAPS score. Significant improvement in declarative memory deficits; 4.6% increase in hippocampal volume.	Vermettea et al., 2003

Table 7.C.3—Continued

Drug	Design and Duration	Objective	No. of Patients	Patient Disposition	Results/Outcome	Reference
Fluoxetine	Double-blind, placebo-controlled, randomized; 24wk	Relapse rate and time to relapse with long-term treatment vs. discontinuation	131	Patients responding to 12wk acute-phase trial	Fluoxetine associated with significantly lower likelihood of relapse, and greater improvement in TOP-8 and CGI-S score. Relapse seen in 16% and 5.8% of placebo and fluoxetine recipients, respectively.	Martenyi et al., 2002
Atypical antipsychotics						
Risperidone	Double-blind, placebo-controlled, randomized; 16wk	Effects of long-term treatment	65	Combat veterans in 5wk VA residential program	Greater improvements in CAPS, CAPS-D, HAM-A, and PANSS-P at 16wk in risperidone compared with placebo recipients. Most cases, risperidone was given as an adjunctive treatment.	Bartzikis et al., 2004
Clozapine	Retrospective chart review; 6mo	Effects of long-term treatment	6	Adolescents with history of abuse in residential care	Descriptive improvement, and indication that clozapine is effective in treating psychosis and hallucinatory behavior.	Wheatley et al., 2004
Other medications						
Valproate	Open-label, adjunct; 10.6mo	Effects of long-term treatment	14	Combat-related PTSD	Quality and duration of sleep improved in 9 of 14 subjects, hyperarousal improved in 11 of 14 subjects, and avoidance improved in 9 of 14 subjects.	Fesler et al., 1991
Nefazodone	Open-label; 3–4 years	Effects of long-term treatment	10	Combat-related PTSD, previously in a 12wk open-label trial	Significant improvement in PTSD, sleep, and depression. Well tolerated.	Herzberg et al., 2002

SOURCE: L. L. Davis, E. C. Frazier, R. B. Williford, and J. M. Newell. Long-term pharmacotherapy for post-traumatic stress disorder. *CNS Drugs*, Vol. 20, No. 6, 2006, pp. 465–476. Used with permission.

NOTES: CAPS = Clinician-Administered PTSD Scale; CAPS-D = CAPS Criterion D (hyperarousal); CGI-S = Clinical Global Impression Scale–Severity; HAM-A = Hamilton Rating Scale for Anxiety; PANSS-P = Positive and Negative Syndrome Scale–Positive Subscale; QOL = quality of life; TOP-8 = Treatment Outcome for PTSD–8 item; VA = Veterans Affairs.

lowing trauma. Neither one-time group nor individual PD can be recommended to prevent subsequent development of PTSD following a traumatic event. Some studies of individual PD suggest that the intense re-exposure involved in PD can retraumatize some individuals (Foa, Keane, and Friedman, 2000b).

One form of psychological debriefing is critical-incident stress debriefing (CISD). A recent meta-analysis conducted by van Emmerik and colleagues (2002) found that CISD interventions did not improve severity of symptoms. They state that “claims that a single session of psychological debriefing can prevent development of chronic negative psychological sequelae are empirically unwarranted” (p. 770).

Another term for CISD is critical-incident stress management (CISM). A recent review by Bledsoe (2003) also concluded that there is a limited amount of quality data on CISD/CISM/PD. In addition, Bledsoe also notes that the higher-quality studies that have been conducted raise doubts about these types of procedures in treating PTSD symptoms, because findings indicate that in some cases CISD/CISM/PD can be harmful.

Other Psychological Treatments.

Eye-Movement Desensitization and Reprocessing (EMDR). EMDR is an integrative treatment during which people are asked to hold in mind a disturbing image, an associated negative cognition, and bodily sensations associated with a traumatic memory, while tracking the clinician’s moving finger in front of his/her visual field. Variations of this procedure are repeated until distressing aspects of the traumatic memory are reduced (Foa, Keane, and Friedman, 2000b). EMDR treatment includes aspects of cognitive-behavioral therapy, such as desensitization and installation of positive cognitions (Foa, Keane, and Friedman, 2000b). The largest effects have been found for EMDR versus no treatment or EMDR versus nonspecific treatment (Davidson and Parker, 2001). Evidence is also stronger for persons with single-event civilian trauma than on multiply traumatized chronically ill veterans (Foa, Keane, and Friedman, 2000b).

Imagery Rehearsal Therapy (IRT). IRT uses a combination of exposure to images, CT, and instruction in sleep habits. It is intended to help the patient gain control of the content of nightmares so that the meaning, importance, and orientation to the nightmare are altered. The key to a successful approach is the use of imagery. IRT avoids discussion of trauma or the traumatic content of nightmares (Forbes et al., 2003; Krakow et al., 2001).

Psychodynamic therapy (PT). PT seeks to address what is unconscious by making it conscious. It does so by exploring the psychological meaning of the traumatic event. There are different types of PT. Formal psychoanalysis involves four to five 45–50-minute sessions each week over the course of two to seven years. PT can also involve one or two meetings a week and can be short-term (a few months) or open-ended (lasting years). Brief PT involves meeting once or twice a week for 12 to 20 sessions (Kudler, Blank, and Krupnick, 2000). There are few empirical investigations of

PT (Foa, Keane, and Friedman, 2000b); thus, there is little empirical evidence for its effectiveness in treating PTSD.

Hypnosis. Typically used as an adjunct to other therapies and shown to increase their effectiveness (Kirsch et al., 1998), hypnosis is used to suggest changes in behavior and mental processes. There is little empirical evidence for the effectiveness of hypnosis in treating PTSD. Foa, Keane, and Friedman (2000b) found only one relevant study; that study showed that hypnosis improved PTSD symptoms. A more recent study compared six sessions of cognitive-behavioral therapy with hypnosis, and supportive counseling with civilian trauma survivors (Bryant et al., 2005). Findings indicated that fewer participants in the CBT and the CBT-hypnosis group met criteria for PTSD at the six-month follow-up than did the supportive counseling group. The CBT-hypnosis group did not report greater clinical gains overall than the CBT group (Bryant et al., 2005). A three-year follow-up of these groups showed that both the CBT and CBT-hypnosis group were less likely to re-experience the traumatic event and to avoid situations than patients who received supportive counseling. There were no clinical differences between the CBT group and the CBT-hypnosis group (Bryant et al., 2006).

Psychosocial Rehabilitation (PR). PR involves several techniques, including (1) education, (2) training in independent-living skills, (3) supported housing, (4) family skills training, (5) social-skills training, (6) vocational rehabilitation, and (7) case management. These techniques are suggested as an adjunct to other forms of PTSD treatment. The techniques are considered to be effective; however, none has been tested with persons with PTSD in well-controlled trials (Penk and Flannery, 2000).

Modes of Treatment. The therapies described above are usually delivered by a clinician to an individual patient. Other modes include group therapy, marital therapy, and inpatient treatment.

Group Therapy (GT). GT for PTSD focuses on offering cohesion, encouragement, and support from other group members. GT is typically offered in two formats. One avoids focusing on the details of the trauma; instead, it helps servicemembers cope. The other focuses on the trauma directly, using prolonged exposure and other techniques to help servicemembers gain control over their symptoms. Despite some limitations, GT studies report favorable effects; however, there is no evidence that one type of group therapy outperforms another (Foy et al., 2000). Based on a review of four studies, the Institute of Medicine committee decided that there was insufficient evidence to determine the efficacy of group therapy as a treatment for PTSD (Institute of Medicine, 2007).

Marital and Family Therapy (MFT). MFT has been recommended for treating traumatized adults. Typically used as an adjunct to other PTSD treatments (Riggs, 2000), MFT comprises two categories: approaches that address family disruption and supportive approaches designed to help family members provide support for the individual being treated for PTSD. Only one randomized controlled study was found for

MFT. Information about the effectiveness of MFT is usually anecdotal and includes clinical descriptions (Riggs, 2000).

Inpatient Treatment. Inpatient programs are designed for people who have had multiple traumatic episodes and who suffer from chronic and prolonged PTSD. Inpatient treatment may also be indicated for patients who have complex needs (e.g., multiple problems that might require observation to assess and evaluate their response to treatment) and for those who may be considered a threat to themselves or others. Inpatient treatment is available on general psychiatric units and in specialty units and treatment tracks. Inpatient treatment typically uses many different interventions and involves longer stays (2–12 weeks) rather than crisis admissions. To date, specialty programs have been organized for combat veterans and adult survivors of childhood trauma. There is limited research on the efficacy of specialized inpatient PTSD treatment (Courtois and Bloom, 2000).

Comparing the Effectiveness of Treatments. Several meta-analyses make it possible to compare the effectiveness of specific treatments. Van Etten and Taylor (1998) conducted one of the most comprehensive meta-analyses on treatment for PTSD, reviewing 61 treatment-outcome trials for PTSD, which included the following treatments: drug therapies (TCAs, carbamazepine, MAOIs, SSRIs, and benzodiazepines [BDZs]), psychological therapies (behavior therapy, EMDR, relaxation training, hypnotherapy, and dynamic therapy), and control conditions (pill placebo, wait-list controls, supportive psychotherapies, and nonsaccade EMDR control).

Van Etten and Taylor found that psychological therapies had significantly lower dropout rates than pharmacotherapies (14 percent versus 32 percent). Psychological therapies were also more effective in reducing symptoms than drug therapies. Both psychological therapies and drug therapies were more effective than controls. Among the drug therapies, the SSRIs and carbamazepine had the largest effects. Behavior therapy and EMDR were the most effective psychological therapies. SSRIs had some advantage over psychosocial therapies in treating depression. Tables 7.C.4 through 7.C.7 provide effect sizes for all these different therapies on both self-reported and observer-reported symptoms of intrusion, avoidance, overall PTSD symptoms, and overall anxiety and depression at immediate post-test.

Follow-up results were not available for most of the therapies; however, the available data suggest that the positive treatment effects of behavior therapy and EMDR were maintained at 15-week follow-up. Table 7.C.4 provides effect sizes for the different PTSD symptoms at post-test. Table 7.C.5 provides effect sizes for these same therapies at post-test on overall anxiety and depression. Tables 7.C.6 and 7.C.7 provide effect sizes for behavior therapy and EMDR on intrusion, avoidance, PTSD symptoms, and overall anxiety and depression at 15-week follow-up.

The most recent meta-analysis, by Bisson and colleagues (2007), focused only on psychological treatments, which included such therapies as trauma-focused cognitive-behavioral therapy, EMDR, stress management, and group CBT. They included

Table 7.C.4
Pre-Post Effect Sizes for Measures of PTSD Symptoms

Condition	No. of Trials	Intrusions				Avoidance				Total Severity of PTSD Symptoms			
		Self-Report		Observer-Related		Self-Report		Observer-Related		Self-Report		Observer-Related	
		<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI
TCA	6	0.64	0.30–0.98	0.46	—	0.35	0.22–0.48	0.55	—	0.54	0.34–0.74	0.86	0.75–0.97
Carbmz	1	1.53	—	—	—	0.52	—	—	—	0.93	—	1.45	—
MAOI	7	0.64	0.27–1.01	—	—	0.40	–0.21–1.01	—	—	0.61	0.38–0.84	0.92	0.73–1.11
SSRI	4	1.71	1.08–2.34	1.28	0.90–1.66	0.92	0.73–1.11	1.37	1.05–1.69	1.38	1.02–1.74	1.43	1.19–1.67
BDZ	1	0.51	—	0.66	—	0.16	—	0.32	—	0.49	—	0.54	—
Drug Tx (overall)	19	0.86	0.63–1.09	1.01	0.71–1.31	0.45	0.31–0.59	1.00	0.64–1.36	0.69	0.55–0.83	1.05	0.91–1.19
Behav Tx	13	1.12	0.49–1.75	1.76	–0.05–3.57	1.12	0.61–1.63	1.45	–0.10–3.00	1.27	0.80–1.74	1.89	1.66–2.12
EMDR	11	1.12	0.72–1.52	1.39	0.99–1.79	1.27	0.74–1.80	2.01	1.25–2.77	1.24	0.99–1.49	0.69	–0.06–1.44
Relaxation	1	0.54	—	—	—	0.46	—	—	—	0.45	—	—	—
Hypnosis	1	1.06	—	—	—	0.80	—	—	—	0.94	—	—	—
Dynamic	1	0.70	—	—	—	0.64	—	—	—	0.90	—	—	—
Psych Tx (overall)	27	1.02	0.80–1.24	1.57	1.12–2.02	1.03	0.77–1.29	1.74	1.23–2.25	1.17	0.99–1.35	1.51	1.17–1.85
Pill Placebo	4	0.48	–0.17–1.13	—	—	0.07	0.05–0.09	—	—	0.51	0.29–0.73	0.77	0.63–0.91
WLC	5	0.32	0.28–0.36	0.74	0.72–0.76	0.21	0.14–0.28	0.22	–0.65–1.09	0.44	0.28–0.60	0.75	0.67–0.83
Sup Psych	5	0.95	—	0.53	—	0.77	—	0.09	—	0.34	0.01–0.67	0.92	—
No Sacc	1	—	—	—	—	—	—	—	—	0.22	—	—	—
Controls (overall)	15	0.49	0.29–0.69	0.66	0.54–0.78	0.23	0.06–0.46	0.17	–0.18–0.52	0.43	0.33–0.53	0.77	0.71–0.83

SOURCE: M. L. van Etten and S. Taylor. Meta-analysis of PTSD treatments. *Clinical Psychology and Psychotherapy*, Vol. 5, No. 3, September 1998, Table 2, p. 135. Copyright© 1998 John Wiley & Sons Limited. Used with permission.

NOTES: Effect size = $(M_{pre} - M_{post}) / SD_{pooled}$, where $SD_{pooled} = \sqrt{[(SD_{pre}^2 + SD_{post}^2) / 2]}$. All means are weighted by sample size. 90%CI = 90th percentile confidence interval around weighted mean. Note that “—” refers to data missing or not reported. For the 90%CI, “—” appears when there was only one effect size. Within each row, the total number of trials may differ across outcome domains (intrusions, avoidance, and global severity) because some trials did not assess all domains. BDZ = benzodiazepines; Behav Tx = behaviour therapy; Carbmz = carbamazepine; Dynamic = psychodynamic psychotherapy; EMDR = eye-movement desensitization and reprocessing; MAOI = monoamine oxidase inhibitors; No Sacc = no saccade control (control for EMDR); SSRI = selective serotonin reuptake inhibitors; Sup Psych = supportive psychotherapy; TCA = tricyclic antidepressants; WLC = wait-list control.

Table 7.C.5
Pre-Post Effect Sizes for Measures of Anxiety and Depression

Condition	Anxiety				Depression			
	Self-Report		Observer-Related		Self-Report		Observer-Related	
	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI
TCA	0.44	−0.08–0.96	0.54	0.13–0.95	0.44	0.09–0.79	0.85	0.53–1.17
Carbmz	0.47	—	1.73	—	0.48	—	1.25	—
MAOI	0.65	—	0.92	0.44–1.40	0.98	—	0.43	0.28–0.58
SSRI	1.24	—	1.20	—	1.41	—	1.38	—
BDZ	—	—	0.72	—	—	—	0.11	—
Drug Tx (overall)	0.61	0.39–0.83	0.64	0.61–1.09	0.65	0.39–0.91	0.72	0.55–0.89
Behav Tx	1.12	0.84–1.40	1.47	—	0.97	0.80–1.14	—	—
EMDR	0.95	0.69–1.21	—	—	1.05	0.81–1.29	—	—
Relaxation	0.83	—	—	—	0.67	—	—	—
Hypnosis	0.95	—	—	—	—	—	—	—
Dynamic	1.07	—	—	—	—	—	—	—
Psych Tx (overall)	1.04	0.89–1.19	1.47	—	1.00	0.87–1.13	—	—
Pill Plac	0.03	—	0.38	—	0.24	—	0.36	0.19–0.53
WLC	0.25	0.14–0.36	—	—	0.25	0.12–0.42	—	—
Sup Psych	0.25	0.04–0.46	—	—	0.25	0.12–0.42	—	—
No Sacc	0.06	—	—	—	0.14	—	—	—
Controls (overall)	0.17	0.06–0.28	0.38	—	0.23	0.16–0.30	0.36	0.19–0.53

SOURCE: M. L. van Etten and S. Taylor. Meta-analysis of PTSD treatments. *Clinical Psychology and Psychotherapy*, Vol. 5, No. 3, September 1998, Table 4, p. 138. Copyright© 1998 John Wiley & Sons Limited. Used with permission.

NOTE: See the note to Table 7.C.4 for definitions of statistics and acronyms.

38 randomized controlled trials. The meta-analysis showed that trauma-focused CBT and EMDR were more effective than wait-list/control groups on most outcome measures. There was limited evidence that these treatments were superior to supportive/nondirective treatments that did not provide exposure. The meta-analysis also found that studies conducted with Vietnam veterans showed less evidence of these treatments' effectiveness than wait-list groups.

Guidelines for Treating PTSD. We now draw on the results of our literature review to compare the guidelines provided by the VA/DoD for treatment of PTSD with the evidence base. Table 7.C.8 displays these comparisons. The first and second columns list the practice guideline and the corresponding recommended treatment. The third column mentions the evidence from the research literature supporting the recom-

Table 7.C.6
Effect Sizes at Follow-Up (i.e., Symptom Reductions from Pre-Treatment to 15-Week Follow-Up) for PTSD Symptoms

Condition	No. of Trials	Intrusions				Avoidance				Total Severity of PTSD Symptoms			
		Self-Report		Observer-Rated		Self-Report		Observer-Rated		Self-Report		Observer-Rated	
		<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI	<i>M</i>	90% CI
Behav Tx	5	1.56	0.81–2.29	1.47	0.60–2.34	1.44	0.47–2.41	1.32	0.71–1.93	1.63	1.10–2.16	1.93	1.67–2.19
EMDR	6	1.75	1.46–2.04	2.07	1.77–2.37	1.89	1.08–2.70	2.34	1.76–2.92	1.33	0.89–1.77	2.27	1.78–2.76

SOURCE: M. L. van Etten and S. Taylor. Meta-analysis of PTSD treatments. *Clinical Psychology and Psychotherapy*, Vol. 5, No. 3, September 1998, Table 5, p. 138. Copyright© 1998 John Wiley & Sons Limited. Used with permission.

NOTE: See the note to Table 7.C.4 for definitions of statistics and acronyms.

Table 7.C.7
Effect Sizes at Follow-Up for Measures of Anxiety and Depression

Condition	No. Trials	Anxiety		Depression	
		Self-Report		Self-Report	
		<i>M</i>	90% CI	<i>M</i>	90% CI
Behav Tx	9	0.99	0.66–1.32	0.93	0.76–1.10
EMDR	5	0.90	0.64–1.16	0.91	0.46–1.36

SOURCE: M. L. van Etten and S. Taylor. Meta-analysis of PTSD treatments. *Clinical Psychology and Psychotherapy*, Vol. 5, No. 3, September 1998, Table 5, p. 138. Copyright© 1998 John Wiley & Sons Limited. Used with permission.

NOTE: See the note to Table 7.C.4 for definitions of statistics and acronyms.

Table 7.C.8**VA Guidelines Compared with the Literature on Evidence-Based Treatments for PTSD, ASR, and COPR**

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature ^a	Level of Evidence
Are trauma related symptoms present?			
Acute Stress Reaction	Provide:		
	Acute symptom management	Meet basic needs (e.g., sleep, nutrition), re-establish routine, consider short course of medication, provide positive social supports.	Expert opinion
	Education and normalization	Educate survivors and families about symptoms.	Expert opinion
	Social & spiritual support	No direct evidence that religious/spiritual practices are effective in treating PTSD.	Expert opinion
	Consider medication	Strongest evidence of effectiveness is for antidepressant medications, particularly SSRIs (Davis et al., 2006; Seedat et al., 2006; van Etten and Taylor, 1998).	Randomized outcome studies (for PTSD)
	Avoid:		
	Psychological debriefing	Psychological debriefing does not prevent subsequent development of PTSD after a traumatic event and may retraumatize patients (van Emmerik et al., 2002).	Randomized outcome studies (for PTSD)
	Individual debriefing		
	Compulsory group debriefing		

Table 7.C.8—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature ^a	Level of Evidence
Combat or ongoing military operation stress reaction (COSR):	Provide the following as needed:		
	Reunion or contact with primary group	Based on assumption that soldiers seek to maintain their identities as warfighters in their group (Helmus and Glenn, 2005; Noy, 1987; Solomon, Mikulincer, and Benbenbishty, 1989).	Expert opinion
	Respite from intense stress	Experience suggests that soldiers need to be rotated in and out of combat.	Expert opinion
	Sleep Thermal comfort Oral hydration Oral food Hygiene	Evidence for how loss of sleep affects mental performance is based mostly on anecdotal evidence from the battlefield (Belenky, 1997).	Expert opinion
	Assign appropriate duty tasks and recreational activities that will restore focus and confidence. Avoid further traumatic events until recovered for full duty.	Harsh environmental conditions and lack of nutritious food precipitate stress reactions (Mericle, 1946).	Expert opinion
	Encourage individual to discuss event with others. Reserve group debriefing for members of existing groups.	Military personnel with low confidence in military skills are more prone to disease and nonbattle injury (Stouffer and Lumsdaine, 1965). Psychological debriefing is not recommended as a treatment. Discussion of the event can be helpful as part of a comprehensive treatment plan (Foa, Keane, and Friedman, 2000a).	Expert opinion
	Consider medication	Discussed above	Randomized outcome studies

Table 7.C.8—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature ^a	Level of Evidence
Acute and Chronic PTSD	Stabilize and/or arrange treatment for: Medical condition Psychosocial services Acute psychiatric symptoms.	See respite from intense stress, social and spiritual support, and acute symptom management above.	
	Educate patient and family about PTSD.	See above.	
	Develop collaborative interdisciplinary treatment plan.	Patient may benefit from range of assistance from a range of disciplines.	Expert opinion
	Initiate therapy for PTSD: Educate about medication Initiate pharmacotherapy to willing patients	See above.	Randomized outcome studies
	Initiate psychotherapy: Cognitive therapy	Most evidence of effectiveness comes from studies of female assault survivors (Resick et al., 2002). One recent study found it effective with veterans (Monson et al., 2006).	Randomized outcome studies
	Exposure therapy	Strong evidence of effectiveness (Foa, Keane, and Friedman, 2000a; Sherman, 1998; van Etten and Taylor, 1998).	Randomized outcome studies
	Stress inoculation training	Effective for treating PTSD in female assault survivors. Effectiveness with other populations unknown (Foa, Keane, and Friedman, 2000b).	Randomized outcome studies
	EMDR	Strong evidence of effectiveness (Davidson and Parker, 2001; van Etten and Taylor, 1998). Role of eye movement unclear (Perkins and Rouanzoin, 2002).	Randomized outcome studies
	Imagery rehearsal therapy	Effective in treating nightmares and sleep disruption (Krakow et al., 2001; Krakow et al., 1995).	Randomized outcome studies
	Psychodynamic therapy	Few empirical investigations of psychodynamic therapy. (Foa, Keane, and Friedman, 2000a).	Expert opinion
	Patient education	See above.	

Table 7.C.8—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature ^a	Level of Evidence
	Group therapy	Some evidence that GT is effective; no evidence that one type of GT outperforms others (Foa, Keane, and Friedman, 2000b; Schnurr et al., 2003).	Randomized outcome studies Quasi-experimental studies
	Dialectical behavior therapy for patients with borderline personality disorder (BPD) BPD is a serious mental illness characterized by pervasive instability in moods, interpersonal relationships, self-image, and behavior.	No trials for use of DBT with PTSD patients.	Expert opinion
	Hypnosis	A recent study found that a CBT-hypnosis group was not more effective than a CBT group (Bryant et al., 2005).	Expert opinion One randomized outcome study

^a Almost all available literature focuses on outcomes for PTSD treatment; thus, guidelines for treating ASR and COSR are based on expert opinion.

mended treatment. The final column indicates whether this evidence is based on randomized-outcomes studies, quasi-experimental studies, or expert opinion.

Almost all the available literature focuses on outcomes for PTSD treatment; thus, guidelines for treating ASR and COSR are based on expert opinion. However, because VA/DoD guidelines include ASR and COPR, we include them in the table.

Training of Practitioners. There is very little explicit documentation in the literature of “how much” training is enough training. However, the literature has indicated that “the treatment of PTSD is to be applied by skilled clinicians only . . . and . . . diagnosis and careful evaluation must precede treatment” (Shalev et al., 2000, p. 361). Foa, Keane, and Friedman (2000a, p. 14) state that “typical training would include a graduate-level degree, a clinical internship or equivalent, and past supervision in the specific technique or approach employed.” In their meta-analysis paper, van Etten and Taylor (1998) found that, for the psychological therapies, 75 percent of the studies reviewed reported the level of therapist training. They coded studies as having adequate training if the study specifically reported “adequate years of therapist experience (e.g., over five years) or formal training with a senior colleague experienced in the treatment modality” (van Etten and Taylor, 1998, p. 133).

In response to a need for more trained clinicians, the DoD recently provided a training program in EMDR to 175 DoD/VA clinicians providing trauma services (Russell et al., 2007). Participants responded positively to the workshop. In addition, the patients of these clinicians showed reduced symptoms of depression and PTSD (Russell et al., 2007). The authors suggest that short-term training can provide clinicians with additional skills that appear to transfer to the clinical setting and help patients improve their symptoms.

Depression

Literature Review. We conducted a literature review to find studies focusing on the treatment of depression. We used PubMed (MEDLINE), PsychINFO, and GoogleScholar and limited our searches to English-language articles from 1998 to the present. We also found additional references within the papers and included some of those sources that we thought would provide additional background information, regardless of the year of publication.

We used the following search terms: “treatment,” “early intervention,” “prevention,” “services,” “adult”; “symptoms,” “depression,” “major depressive disorder,” “major depressive episode”; “major depression”; “dysthymia” and “depressive symptoms.” We also used combinations of terms, such as “depression and treatment,” and “major depressive disorder and early intervention.” We focused on recent meta-analyses¹⁰ that

¹⁰ A *meta-analysis* is a study that reviews outcome studies in a particular area and assesses how small or large the effect size of each outcome is. *Effect size* provides information about how much change is evident across all studies and for subsets of studies.

examined outcomes of a range of evidence-based treatments for depression. Overall, we reviewed 80 studies.

Studies are usually assigned to one of three levels of evidence, suggesting the level of confidence with which study findings can be viewed:

1. Randomized clinical trial (RCT). RCTs are considered the gold standard for scientific evidence in health care because they eliminate spurious causality and bias. In an RCT, subjects are randomly allocated to different treatments to ensure that confounding factors are evenly distributed between treatment groups. As a result, outcomes can be linked to treatment with substantial reliability.
2. Nonrandomized controlled trials, cohort or case analysis, or multiple time series. These are studies that utilize various quasi-experimental designs and statistical methods to control for spurious causality and bias, but they do not control for these confounding sources as completely as RCTs.
3. Textbooks, opinions, or descriptive studies. Many recommendations are based on best practices conducted in the field, but rigorous empirical evaluation is lacking.

We refer to these categories in our discussion of VA/DoD guidelines.

Treating Depression.

Diagnosis. Recognizing depressive disorders is often difficult. Studies have shown that primary care providers fail to diagnose depression 35 to 50 percent of the time (Gerber et al., 1989; Katon et al., 1995). The literature suggests that military providers have similar difficulties. In 2002, Hunter and colleagues assessed the detection of depressive disorders in a military primary care setting. The sample comprised 337 patients who made a primary care visit during a five-day period in October 1999. Patients completed several questionnaires, including the depression module of the Patient Health Questionnaire (PHQ). Of the 337 patients, 19 were identified on the PHQ as having symptoms consistent with major depression. Providers identified four of these 19 individuals.

Early diagnosis of depression is important: Recent research suggests that treating subthreshold depression may decrease subsequent symptoms and prevent the onset of major depression (Cuijpers, Smit, and van Straten, 2007). Cuijpers, Smit, and van Straten (2007) conducted a meta-analysis of seven randomized controlled trials examining the effects of psychological treatments for subthreshold depression. Results indicated that treatment was associated with a reduction in depressive symptoms in the short term. Over time, the effects were smaller, but they still suggested the superiority of psychological treatment compared with usual care. Although the number of studies examining psychological treatment for subthreshold depression is small, the research is promising.

Types of Depression Treatment. The four types of depression treatments are as follows:

1. *Psychotherapy*, including cognitive-behavioral therapy, cognitive therapy, and interpersonal therapy
2. *Pharmacotherapy*, using many different kinds of medications
3. *Shocks or stimulation to the brain*, including electroconvulsive therapy and transcranial magnetic stimulation
4. *Complementary treatments*, such as relaxation and herbal remedies.

Below, we describe each type of treatment and summarize available evidence about its effectiveness.

Cognitive Behavioral Therapy (CBT). CBT is a psychotherapy based on modifying patient assumptions, evaluations, and beliefs that might be unhelpful or unrealistic, and on helping the patient to try new ways of behaving and reacting. CBT is a collaborative effort. The therapist's role is to listen, teach, and encourage; the client's role is to express concerns, learn, and implement that learning (NACBT [National Association of Cognitive-Behavioral Therapists] Online Headquarters Web site). CBT is a very structured treatment, and the therapist typically has a specific agenda for each session, in which specific techniques and concepts are taught. CBT is brief and time-limited; for example, an average course of CBT is 15 sessions.

There is strong evidence that CBT improves depressive symptoms (Hollon, Thase, and Markowitz, 2002). CBT has more research than any other psychotherapy supporting its effectiveness for both short-term and long-term improvement in patient outcomes.

A recent meta-analysis (Vittengl et al., 2007) examined 28 studies of CBT involving 1,880 adults. They estimated the proportion of patients who had depressive symptoms after treatment during the acute phase and during the *continuation phase* (e.g., treatment given to prevent symptoms from recurring). Focusing on relapse and recurrence of depression, Vittengl et al. found that, compared with pharmacotherapy, CBT during the acute phase significantly reduced relapse. Adding pharmacotherapy to CBT also significantly reduced relapse compared with pharmacotherapy alone. Relapse-recurrence rates for CBT were comparable to those of other depression-specific psychotherapies, such as interpersonal therapy. In the continuation phase, Vittengl et al. (2007) found that CBT reduced relapse-recurrence compared with non-active controls (e.g., assessment only); however, CBT did not reduce relapse-recurrence rates compared with active controls (e.g., supportive therapy).

Butler and colleagues (2006) reviewed meta-analyses of CBT conducted between 1967 and July 2004 and found 16 that met their criteria of being both extensive and rigorous. These meta-analyses analyzed outcomes from CBT for many different disorders, including depression, generalized anxiety disorder, panic disorder, and obsessive-

compulsive disorder. Several meta-analyses showed that CBT was typically superior to wait-list or placebo controls. Butler et al. suggest the need for future meta-analyses that directly compare CBT with specific alternative therapies versus comparing CBT with a heterogeneous collection of therapies.

Cognitive Therapy. *Cognitive therapy* postulates that dysfunctional thinking patterns generate pathologic emotions that can lead to psychiatric disorders. For example, these thinking patterns can lead a person to feel anxious or depressed in situations in which these emotions are unwarranted (Foa, 2000). Cognitive therapy is focused on the present and helps the patient identify and correct his or her inaccurate beliefs. Skills involve identifying distorted thinking, modifying beliefs, relating to others in different ways, and changing behaviors (Beck Institute Web site). The ultimate aim of CT is to modify patients' cognitions, behavior, emotions, and, sometimes, physiological reactions (Beck, 2001). There is extensive evidence that cognitive therapy is efficacious in treating depression (Hollon, Thase, and Markowitz, 2002). However, results from a large National Institute of Mental Health (NIMH) study raised questions about the effectiveness of CT compared with medication (Elkin et al., 1989) or pill placebo (Elkin et al., 1995). Hollon, Thase, and Markowitz (2002) hypothesize that differing results for CT are due to quality of implementation and suggest that not all therapists implement CT adequately, particularly in patients with more severe depression. Thus, it is not that CT is ineffective but that the therapist's expertise makes a difference when the patient's depression is more severe and difficult to treat. CT has also been shown to have an enduring effect that extends beyond treatment: Patients who receive CT are half as likely to relapse after treatment is completed as are patients who receive medication (Blackburn, Eunson, and Bishop, 1986; M. D. Evans et al., 1992).

Other studies since the NIMH study have shown that cognitive therapy is as effective as MAOIs and that it is also superior to a pill-placebo control (Jarrett et al., 1999).

Recent evidence has shown that the behavioral activation (BA) component of CBT is comparable to antidepressant medication in improving depressive symptoms (Dimidjian et al., 2006). BA emphasizes the relationship between activity and mood, focusing on patterns of avoidance and withdrawal. It promotes involvement with activities and contexts that are reinforcing and consistent with a person's long-term goals. Dimidjian et al. (2006) compared cognitive therapy with behavioral activation and pharmacotherapy at an 8- and 16-week follow-up period. They found that participants in the BA condition improved more per treatment-week than participants in the CT condition. Similarly, participants receiving medication improved more than participants receiving CT; however, they found no differences between BA and medication. Cuijpers and colleagues (Cuijpers, van Straten, and Warmerdam, 2007a), who conducted a recent meta-analysis on BA treatments for depression, focusing on activity-scheduling (e.g., having patients schedule daily activities that are pleasurable to them), found 16 studies with 780 participants and a nonsignificant effect size (.13) that

favoring activity-scheduling when they compared it with other psychological treatments (e.g., CT, medication).

DeRubeis and colleagues (2005) conducted a study in which participants were randomly assigned to 16 weeks of medications ($n=120$), 16 weeks of cognitive therapy ($n=60$), or 8 weeks of pill placebo ($n=60$). At 8 weeks, response rates in the medications (50 percent) and cognitive therapy (43 percent) groups were both superior to the placebo (25 percent) group. At 16 weeks, response rates were 58 percent in the medication and CT groups; remission rates were 46 percent for medication, 40 percent for cognitive therapy, and did not differ between medication and CT. In later follow-up assessments, the authors found that, at one site, symptoms improved more for those who received medication than for CT. Similar to other studies, they hypothesized that site differences in patient characteristics and in experience levels of the cognitive therapists may have contributed to this result (DeRubeis et al., 2005).

Interpersonal Therapy (IPT). Interpersonal therapy (IPT) is a short-term supportive psychotherapy that focuses on the link between the development of a person's psychiatric symptoms and his or her interactions with other people. IPT focuses on current problems and people who are important in the patient's life, and helps patients assess how these problems may be related to relationships with others. IPT also helps the patient master problems by recognizing emotional responses to situations and providing education and correcting misinformation about depression. The efficacy of IPT has been tested in numerous controlled clinical trials; but it has only been implemented in clinical practice in the past decade (Weissman and Markowitz, 1994).

A systematic review of IPT on depressive disorders was conducted in 2005 to update the prior reviews, to assess whether IPT was superior to other brief psychotherapies, and to determine whether combining IPT with antidepressant medications increases improvements in depressive symptoms (Feijo de Mello et al., 2005). Databases were searched from 1974 to 2002 for randomized controlled trials. Thirteen trials met inclusion criteria. Overall, recent studies have shown that IPT is effective in treating depressive disorders and also appears to prevent relapse. IPT was more effective than placebo. Nine studies compared IPT alone with medication. Five of these studies reported remission during treatment in the acute stage; remission was more likely to occur in the medication group than in the IPT group. Remission after six months or more was reported in three studies; again, remission was more likely to occur with patients receiving medication, but this result was not statistically different (Feijo de Mello et al., 2005). In studies with IPT plus medication compared with medication alone, remission was more likely in the combination group after four months or less of therapy. IPT was also compared with CBT. When depressive symptoms were compared at the endpoint, there was a statistically significant difference favoring IPT.

General Predictors of Effectiveness of Psychotherapy. Certain factors seem to be associated with better outcomes regardless of the kind of psychotherapy provided (e.g., CBT or IPT). A recent meta-analysis examined studies of therapy designed for

the general population (*universal programs*), for subgroups at risk (*selective programs*), and for those who have been treated but are at high risk for relapse (*indicated programs*) to determine what factors were associated with improvement in depressive symptoms (Jane-Llopis et al., 2003). They found no differences in effect sizes among children, adolescents, and adults or between universal, selective, and indicated programs. Longer programs (e.g., with eight or more sessions) were better than programs with fewer than eight sessions. In addition, programs that used a combination of health care professionals and lay personnel had the largest effect sizes. Programs provided by health care professionals had larger effect sizes than programs run by lay personnel for selective and indicated programs. Thus, more-severe depression may require trained personnel who are skilled in delivering treatment. Finally, programs that had well-defined interventions performed better than those that did not have a well-defined intervention.

Problem-Solving Therapy. Problem-solving therapy (PST) involves having the patient systematically identify his or her problems, generate solutions for these problems, create and implement a plan, and evaluate whether or not this process has solved the problem (D’Zurilla and Nezu, 1982; Mynors-Wallis et al., 1995). Overall, PST has been shown to be effective in treating depression, although further research is needed to clarify the conditions and participants for which it may have more-positive effects (Cuijpers, van Straten, and Warmerdam, 2007b).

There have been many randomized controlled studies of PST for depression; however, until 2007, there has been no effort to integrate these findings. Cuijpers, van Straten, and Warmerdam (2007b), who conducted a meta-analysis using papers from 1966 to March 2005, studies in which the effects of PST were examined for adults and were compared with a control or other treatment in a randomized controlled trial. They identified 13 studies with a total of 1,133 participants. Overall, the effects varied among the different studies, with some effect sizes below zero (indicating that the control treatment was superior) to very large effect sizes. Cuijpers and colleagues concluded that more research is needed to clarify the conditions and participants in which the positive effects are found.

Self-Help Therapy. *Self-help treatments*, or *self-administered treatments*, are typically defined as treatments without therapist contact. They usually encompass media-based treatments, such as books, manuals, audiotapes, or some combination (Gellatly et al., 2007; Menchola, Arkowitz, and Burke, 2007). However, there is no agreed-upon definition of *self-help* and there is no consensus concerning the appropriate amount of therapist contact for a treatment to be described as “self-help” (Gellatly et al., 2007). Findings have shown that self-help treatments can be effective in treating depression (Gellatly et al., 2007); however, effectiveness can depend, in part, on how serious the patient’s depressive symptoms are, because these treatments may be insufficient for patients with more-severe depressive symptoms (Menchola, Arkowitz, and Burke, 2007).

Two recent meta-analyses examined the effect of self-help treatments on depression. Gellatly and colleagues (2007) identified 34 studies between 2002 and 2005 and

examined factors that might determine effectiveness, such as patient populations or intervention content. Overall, they found a medium effect size of self-help interventions. Studies involving patients recruited in nonclinical settings and studies using a guided self-help approach (versus a “pure” self-help approach) had higher effect sizes (Gellatly et al., 2007).

Menchola, Arkowitz, and Burke (2007) conducted their review of self-administered treatments because they wanted to control for several confounding factors that were present in previous meta-analyses. They included 11 studies on depression. Overall, self-administered treatments were more effective than the no-treatment control; the level of improvement was significantly lower than therapist-administered treatment. For milder disorders, reviews have suggested that self-administered treatments may be helpful; for more-serious disorders, self-administered treatments may be insufficient without additional contact from a therapist.

Pharmacotherapy. Antidepressant medications can be used for depressive disorders at all levels of severity (Hollon, Thase, and Markowitz, 2002). Specific medication choice is based on the medication’s side effect, safety in overdose, the patient’s history of prior response to medication, the patient’s other medical conditions, family history of response, and type of depression. Medications include monoamine oxidase inhibitors; tricyclic antidepressants; selective serotonin reuptake inhibitors; dual-mechanism antidepressants (e.g., bupropion, nefazodone, venlafaxine, mirtazapine); and other antidepressants, such as amoxapine, maprotiline, and trazodone.

MAOIs were the first antidepressants to be identified. They work by inhibiting the action of monoamine oxidase, a liver and brain enzyme that burns up the brain’s neurotransmitters serotonin, norepinephrine, and dopamine. (Low levels of the neurotransmitters are associated with depression.) MAOIs are no longer used frequently to treat depression because of their side effects; however, they are still used as an alternative treatment for patients who may not respond to other medications (Hollon, Thase, and Markowitz, 2002).

TCAs work by inhibiting reuptake of either norepinephrine or both norepinephrine and serotonin. The major drawback of using TCAs is the high potential for overdose. There are also multiple side effects, including fainting, and an effect on the heart that may contraindicate use for people with irregular heartbeats (Hollon, Thase, and Markowitz, 2002). One study found that, on average, 30 percent of patients in controlled trials stopped taking TCAs because of the side effects (Depression Guideline Panel, 1993).

SSRIs are currently the medication most frequently prescribed for treating depression. SSRIs work by blocking the reuptake of serotonin. Their side effects include diminished libido, nervousness, and insomnia.

Some studies have suggested that the side effects of nervousness and insomnia may help explain the link that has been shown between SSRI use and an increase in suicidal thoughts (Teicher, Glod, and Cole, 1990). Gunnell, Saperia, and Ashby (2005)

recently examined whether adults prescribed SSRIs have an increased risk of suicide, nonfatal self-harm, or suicidal thoughts. Pooling data from several hundred randomized controlled trials involving more than 40,000 patients, they found no increased risk of suicidal thoughts, but there was a possible increased risk of nonfatal self-harm in the early weeks of treatment (Gunnell, Saperia, and Ashby, 2005). The researchers did not have access to individual patient data, and they pooled results across several SSRIs. Such findings highlight the importance of further research in this area to clarify appropriate use of these medications and to better understand how to identify people at risk for increased suicidal behavior (Gunnell, Saperia, and Ashby, 2005).

Several dual-mechanism antidepressants have multiple direct effects on neuronal systems, which may give them an advantage over conventional SSRIs (Hollon, Thase, and Markowitz, 2002). For example, at high doses, venlafaxine potentially inhibits reuptake of serotonin and norepinephrine. Side effects include tremor, headache, sexual dysfunction, and insomnia and are comparable to those of the SSRIs; however, it may have an advantage over SSRIs in treating relatively severe depression (Thase, Entsuah, and Rudolph, 2001).

Nefazodone works by blocking a specific serotonin receptor (D. P. Taylor et al., 1995). It has a low risk of sexual side effects (Ferguson et al., 2001) and improves sleep (Rush et al., 1998).

Mirtazapine works by blocking serotonin receptors as well as selected norepinephrine and other receptors (Hollon, Thase, and Markowitz, 2002). It tends to be more sedating than other antidepressants, but studies have shown that it decreases symptoms more quickly than the SSRIs (Quitkin, Taylor, and Kremer, 2001).

In the past two decades, many meta-analyses have been conducted to assess the effects of various medications on depressive symptoms. We describe some of the more recent studies. Table 7.C.9 provides the classification and dosage range for antidepressants.

In 2000, Anderson conducted a meta-analysis of the efficacy and tolerability of TCAs and SSRIs. He examined data on nearly 11,000 patients from 102 randomized controlled trials. He found no overall differences in efficacy between SSRIs and TCAs; however, TCAs appeared to be more effective than SSRIs for inpatient populations. SSRIs appeared to be better tolerated than the TCAs, and there were lower side effect–related rates of dropout for SSRIs (Anderson, 2000).

Arroll and colleagues (2005) conducted a similar meta-analysis of the efficacy and tolerability of TCAs and SSRIs compared with a placebo in the primary care setting. They included 17 studies. Similar to Anderson (2000), they found that TCAs and SSRIs were more effective than placebo for both major depressive disorder and *heterogeneous depression* (e.g., patients thought by their general practitioner to be depressed, which may or may not include patients with major depression), which is more commonly seen in primary care settings. They also found a lower dropout rate for SSRIs

Table 7.C.9
Classification and Dosages for Antidepressants^a

Class	Mechanism of Action	Generic Name (U.S. Trade Name) ^b	Recommended Dosage (mg/day)
Selected newer antidepressants			
Selective serotonin reuptake inhibitors	Selectively inhibit the reuptake of 5-HT at the presynaptic neuronal membrane	Fluoxetine (Prozac) Fluvoxamine (Luvox) Paroxetine (Paxil) Sertraline (Zoloft) Citalopram (Celexa)	20–60 100–300 20–50 50–200 20–80
Serotonin and noradrenaline reuptake inhibitors	Potent inhibitors of 5-HT and norepinephrine uptake; weak inhibitors of dopamine reuptake	Venlafaxine (Effexor) Mirtazapine (Remeron) Milnacipran	75–350 15–45 Undetermined
Norepinephrine reuptake inhibitor	Inhibits norepinephrine reuptake without inhibiting serotonin reuptake	Viloxazine ^c Reboxetine ^c	100–400 Undetermined
Reversible inhibitors of monoamine oxidase A	Selective, reversible inhibitors of monoamine oxidase A, resulting in increased concentrations of norepinephrine, 5-HT, and dopamine	Moclobemide ^c Brofaromine ^c	300–600 75–150
5-HT ₂ receptor antagonists	Mixed serotonin effects	Nefazodone (Serzone) Ritanserin ^c	300–600 Undetermined
5-HT _{1a} receptor agonists	Partial agonist of serotonin 5-HT _{1a}	Gepirone, ^c ipsapirone, ^c tandospirone, ^c felsinoxan ^c	Undetermined
GABAmimetics	GABAA and GABAB receptor agonists	Fengabine ^c	900–1,800
Dopamine reuptake inhibitor	Increases activity of norepinephrine and dopamine only; does not significantly affect serotonin	Bupropion (Wellbutrin, Zyban)	200–450
Herbal remedy	Unclear	Hypericum (also known as St.-John's-wort)	300–900
Mixed serotonin and norepinephrine reuptake inhibitors	Potentiate serotonin and norepinephrine activity; potency and selectivity differ by agent		
Selected older antidepressants			
First-generation tricyclic antidepressants		Amitriptyline (Elavil, Endep) ^d	100–300
		Clomipramine (Anafranil)	100–250
		Doxepin (Adapin, Sinequan) ^d	100–300
		Imipramine (Tofranil) ^d	100–300
		Trimipramine (Surmontil)	100–300
Second-generation tricyclic antidepressants		Despramine (Norpramin) ^d	100–300
		Nortriptyline (Pamelor) ^d	50–150

Table 7.C.9—Continued

Class	Mechanism of Action	Generic Name (U.S. Trade Name) ^b	Recommended Dosage (mg/day)
Tetracyclic antidepressant		Maprotiline (Ludiomil) ^d	100–200
Triazolopyridines	Mixed serotonin effects	Trazondone (Desyrel)	150–400
Monoamine oxidase inhibitors	Nonselective inhibitor of monoamine oxidase A and B	Phenelzine (Nardil) Tranlycypromine (Parnate)	60–90 20–60

SOURCE: J. W. Williams, Jr., C. D. Mulrow, E. Chiquette, P. H. Noël, C. Aguilar, and J. Cornell, A systematic review of newer pharmacotherapies for depression in adults: Evidence report summary. *Annals of Internal Medicine*, Vol. 132, No. 9, 2000, pp. 2–11. Used with permission.

^a GABA 5 g-aminobutyric acid; HT 5 hydroxy-tryptophan.

^b Brand-name drugs are produced by the following manufacturers: Adapin, Fisons Pharmaceuticals, Rochester, New York; Anafranil and Tofranil, Novartis, East Hanover, New Jersey; Celexa, Forest Pharmaceuticals, Inc., St. Louis, Missouri; Desyrel and Serzone, Bristol-Myers Squibb, Princeton, New Jersey; Effexor and Surmontil, Wyeth-Ayerst, Philadelphia, Pennsylvania; Elavil, Zeneca Pharmaceuticals, Wilmington, Delaware; Endep, Hoffman-LaRoche, Nutley, New Jersey; Luvox, Solvay Pharmaceuticals, Inc., Marietta, Georgia; Nardil, Parke-Davis, Morris Plains, New Jersey; Norpramin, Aventis Pharmaceuticals, Parsippany, New Jersey; Pamelor and Ludiomil, Novartis, East Hanover, New Jersey; Paxil and Parnate, SmithKline Beecham Pharmaceuticals, Philadelphia, Pennsylvania; Prozac, Eli Lilly and Co., Indianapolis, Indiana; Remeron, Organon, Inc., West Orange, New Jersey; Wellbutrin and Zyban, Glaxo Wellcome, Research Triangle Park, North Carolina; Zoloft and Sinequan, Pfizer, New York, New York.

^c Not available in the United States.

^d Generic form available.

than for TCAs (Arroll et al., 2005). These results are consistent with other individual trials of these medications (e.g., Bech et al., 2000).

Williams and colleagues (2000) compared new antidepressants, such as SSRIs, to older antidepressants, such as TCAs and MAOIs. They found no difference in effects between the two types of antidepressants; about half of the patients randomly assigned to each type reported improvement in depressive symptoms. Dropout rates were higher for older antidepressants.

In 2006, Kennedy, Anderson, and Lam reviewed studies of escitalopram, the most selective of the SSRI antidepressants. They found ten studies, which included about 2,700 patients. Conducting a comparison of escitalopram with active controls (e.g., citalopram, fluoxetine, paroxetine, sertraline, and venlafaxine XR), they found that escitalopram was superior in efficacy to other SSRIs and comparable to venlafaxine. In addition, the superiority of escitalopram over other agents increased with the severity of depression (Kennedy, Anderson, and Lam, 2006).

Pharmacotherapy and Psychotherapy. Research has shown that pharmacotherapy and psychological treatment (primarily CBT and IPT) can be equally effective in treating depression (Casacalenda, Perry, and Looper, 2002; Hollon, Thase, and Markowitz, 2002). Some studies have found that combining pharmacotherapy and

psychotherapy can be more effective than a single treatment (Friedman et al., 2004; De Maat et al., 2006; Pampallona et al., 2007). For example, in a systematic review of 16 trials from 1980 to 2002, Pampallona et al. (2004) found that psychotherapy in addition to antidepressant medication was associated with greater improvement than pharmacotherapy treatment alone.

Friedman and colleagues (2004) also examined studies that randomized patients to a combined-treatment condition or at least one other treatment, such as psychotherapy or pharmacotherapy. They found that combined treatments had small benefits compared with medication alone. There were fewer studies that compared combined treatment to psychotherapy alone; however, results from these studies indicated that there was no benefit of combined treatment versus psychotherapy. Similarly, De Maat and colleagues (2006) found that combined therapy only outperformed psychotherapy alone for moderate chronic depression. No differences were found for mild and moderate nonchronic depression. Thus, combined treatment may be more effective than a single treatment for treating chronic depression (De Maat et al., 2006; Friedman et al., 2004), and adding CBT to medication may also be helpful in preventing relapse (Friedman et al., 2004).

Electroconvulsive Therapy (ECT). *Electroconvulsive therapy* uses electricity to induce seizures. ECT is the most effective and most rapidly acting treatment available for severe major depression (American Psychiatric Association, 2007; American Psychiatric Association Web site, Electroconvulsive Therapy [ECT] page). ECT typically begins during an inpatient stay and involves a course of six to 12 electrically induced grand-mal seizures that are spaced several days apart (Hollon, Thase, and Markowitz, 2002). Its cost and potential side effects mean that ECT is typically used for treatment of only severe mood disorders that have not responded to other treatment (Hollon, Thase, and Markowitz, 2002). Overall, ECT has been shown to be efficacious in treating severe depression (Fink and Taylor, 2007). Many studies have documented that, for patients with severe depressive illness, ECT is effective and superior to sham ECT and to medications (Abrams, 2002). Two large studies were conducted to evaluate the efficacy of ECT and examine relapse prevention among patients with unipolar depression (Kellner et al., 2006; Sackeim et al., 2001). Remission rates for patients who were given ECT were 55 percent in the Columbia University Consortium study (Abrams, 2002) and 86 percent in the Consortium for Research in ECT (Kellner et al., 2006). These results compare favorably with remission rates of antidepressants (e.g., 21 percent for sertraline and 25 percent for venlafaxine) found in another large trial of outpatients with nonpsychotic major depression (Rush et al., 2006). Remissions are earlier for patients who do not have psychosis (Petrides et al., 2001). One concern with ECT is memory loss. Previous research has shown that the memory loss is mostly transient and circumscribed (Abrams, 2002).

Transcranial Magnetic Stimulation (TMS). *TMS* is a technique for gently stimulating the brain. It uses a specialized electromagnet placed on the patient's scalp that

generates short magnetic pulses, roughly the strength of a magnetic resonance imaging (MRI) scanner's magnetic field, but much more focused. The magnetic pulses pass easily through the skull, just as the MRI scanner fields do, but because they are short pulses and not a static field, they can stimulate the underlying cerebral cortex (brain). Low-frequency (once per second) TMS has been shown to reduce brain activation, whereas stimulation at higher frequencies (>5 pulses per second) has been shown to increase brain activation. These changes can last for periods of time after stimulation is stopped.

TMS was first developed in 1985 and has been studied since 1995. TMS is currently being investigated as a potential treatment for patients with major depression. For patients with major depression, many studies have shown clinical improvement following TMS (National Alliance on Mental Illness Web site, Transcranial Magnetic Stimulation page).

Gershon, Dannon, and Grunhaus (2003) reviewed the effect of TMS on the treatment of depression. Several studies have shown that fast, repetitive TMS (rTMS) to the left prefrontal cortex and slow rTMS to the right prefrontal cortex are associated with improvements in depressive symptoms. Studies comparing long courses for high-frequency rTMS to ECT have found similar remission rates between these two treatments (Gershon, Dannon, and Grunhaus, 2003).

Across all of these studies, the effectiveness of rTMS differed. Gershon, Dannon, and Grunhaus (2003) believe this difference to be due to several factors, including whether or not the patient has psychosis (i.e., absence of psychosis may be a predictor of success), age (i.e., older patients respond less well to rTMS [Figiel et al., 1998; Kozel et al., 2000]), and underlying brain physiology (Gershon, Dannon, and Grunhaus, 2003). In addition, the frequency at which the magnetic field oscillates during the magnetic stimulation and other aspects of the simulation, including the duration, pulse intensity, and quantity, all vary among these studies, which could affect findings (Gershon, Dannon, and Grunhaus, 2003).

Complementary Therapies. These therapies include popular alternatives to the above-discussed treatments, such as exercise, relaxation, and herbal remedies (Ernst, 2007). For example, *acupuncture therapy* involves sticking needles into certain points along the body to restore the body's flow of energy. *Aromatherapy* combines gentle massage techniques with essential oils from plants. *Relaxation therapy* is a term that encompasses many techniques whose objective is to decrease physical and mental tension (e.g., yoga).

St.-John's-wort (*Hypericum perforatum*) is one of the few herbal remedies that has been extensively tested in randomized controlled trials (Williams et al., 2000). Overall, evidence suggests that St.-John's-wort and exercise are two complementary therapies that can effectively treat mild to moderate depression. Few rigorous studies have been conducted on the other complementary therapies, although some findings were promising for acupuncture, massage, and relaxation (Ernst, Rand, and Stevenson, 1998).

Modes of Treatment. The therapies described above are usually delivered by a clinician to an individual patient. Other modalities include group therapy, marital therapy, and inpatient treatment.

Group Therapy. Group therapy is typically provided as a cognitive and/or behavioral treatment.

A meta-analysis of 48 studies on group therapy for depression found that group therapy is effective in treating depression (McDermut, Miller, and Brown, 2001). The types of group therapy that were examined included behavioral treatments (23 studies), cognitive therapy (18), cognitive-behavioral therapy (11), psychodynamic and interpersonal therapies (8 studies), social support (3 studies), nondirective/attention control (5 studies), and other therapies (4 studies). Of the 46 studies (two of the 48 did not report statistics), 43 found that group therapy significantly improved symptoms. Fifteen of these studies compared group treatment to a control group; findings suggest that the average treated participant improved significantly and was better off than 85 percent of the untreated participants (McDermut, Miller, and Brown, 2001).

Marital Therapy. Much research has shown a strong relationship between marital distress and depression (e.g., Fincham et al., 1997). Marital therapy has been shown to help couples improve their communication, problem solving, and interpersonal relationship skills (Jacobson and Christensen, 1996).

Mead (2002) reviewed the treatments used for marital therapy. The treatments are similar to the treatments provided in individual settings (e.g., CT and CBT); however, they are provided to the couple. Studies have shown that conjoint interpersonal marital therapy, cognitive marital therapy, and behavior-focused marital therapy are all effective in treating marital distress and depression. To date, the most evidence exists for behavior marital therapy, and this treatment is also the most widely utilized (Mead, 2002).

Inpatient Treatment. Inpatient treatment is available in general psychiatric units and in specialty units and treatment tracks. It typically incorporates many different interventions and involves longer stays (2–12 weeks) rather than crisis admissions. Inpatient programs are designed for people who have severe depression and who may have made suicide attempts and/or who are a danger to themselves until some of their depressive symptoms are alleviated.

Guidelines for Treating Depression. Table 7.C.10 lists the guidelines provided by the VA/DoD for the treatment of depression. The column next to the intervention column reports on the evidence from the research literature that supports these guidelines; and the next column indicates whether this evidence from the literature is based on randomized outcome studies, quasi-experimental studies, or expert opinion.

Overall, the therapies proposed for use by the VA/DoD have a strong evidence base in the literature. The VA/DoD guidelines do not discuss Transcranial Magnetic Stimulation, a more recent treatment that has been shown to be effective in treating

Table 7.C.10
VA Guidelines Compared with the Literature on Evidence-Based Treatments for Depression

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature	Level of Evidence
Major Depressive Disorder	Discuss treatment options and patient's preferences		Expert opinion
	Provide patient/family education		Expert opinion
	Psychotherapy:		
	Cognitive therapy	Effective in treating depression (Hollon, Thase, and Markowitz, 2002). Patients who receive CT are half as likely to relapse as patients who receive medication (Blackburn, Eunson, and Bishop, 1986; M. D. Evans et al., 1992).	Randomized outcomes studies
	Behavior therapy	Behavioral-activation component of CBT is as effective as antidepressant medication in improving depressive symptoms (Dimidjian et al., 2006).	Randomized outcomes studies
	Interpersonal therapy	Effective in treating depression (Feijo de Mello et al., 2005).	Randomized outcomes studies
	Brief dynamic therapy	Effective in treating psychiatric disorders when compared with wait-list controls; otherwise, does not differ from other forms of psychotherapy (Leichsenring, Rabung, and Leibing, 2004).	Randomized outcome studies
	Marital psychotherapy	Behavioral marital therapy is effective for treating co-occurring marital distress and depression (Beach, 2001; Cordova, Warren, and Gee, 2001; Prince and Jacobsen, 1995).	Randomized outcome studies
	Clinical evaluation of one to three visits	For patients who do meet criteria for complexity, an extended two or three visits can help identify those whose depressive symptoms may be transient.	Expert opinion

Table 7.C.10—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature	Level of Evidence
	<p>Psychosocial interventions described as beneficial, although not established empirically as treatments for major depressive disorder:</p> <ul style="list-style-type: none"> Spiritual counseling Family therapy Grief therapy Ancillary services Vocational therapy Financial/money management or socioeconomic assistance 		Expert opinion
	<p>Avoid:</p> <ul style="list-style-type: none"> Long-term therapy (psychodynamic treatment) Brief supportive counseling 	There is no evidence that long-term psychodynamic treatment and brief supportive counseling are effective treatments of depression.	None
	Pharmacotherapy	Improves symptoms for many patients. Few differences between SSRIs and TCAs, but TCAs are more effective than SSRIs in inpatient populations (Anderson, 2000; Arroll et al., 2005; Bech et al., 2000).	Randomized outcome studies
	Electroconvulsive therapy	Effective for patients with severe depression (Abrams, 2002).	Randomized outcome studies
	Combined psychotherapy and pharmacotherapy	Combined treatment may be more effective than a single treatment for treating chronic depression (Friedman et al., 2004; De Maat et al., 2006), and adding CBT to medication may help prevent relapse (Friedman et al., 2004).	Randomized outcome studies
	Continuation and maintenance treatment	Continuation and maintenance-phase treatments are discussed in the context of all treatments for MDD to prevent relapse and recurrence of symptoms.	Randomized outcome studies

Table 7.C.10—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature	Level of Evidence
	Continuation-phase treatment: Sustaining the dose of medication resulting in acute-phase symptom remission Preventing relapse or recurrence of depressive symptoms Monitoring depressive symptoms and functional status Building a constructive therapeutic alliance Maintenance plan should be developed during the course of therapy: •Summary of learning that occurred during therapy •Ways patient will continue to use lessons from the therapy Prediction of times of high recurrence Coping approaches for such crisis periods Use of booster sessions, occasional reassessment of depressive symptoms		
	Maintenance-phase treatment: For those with 3 or more MDD episodes or 2 or more with another risk factor for recurrence should remain on prophylactic antidepressant medication for one or more years following remission of acute episodes at continuation-phase dosage		
For an inpatient mental health setting, guidelines suggest	Developing an Interdisciplinary Treatment Plan Psychiatry PCP Medical specialists (for co-occurring illness) Psychology Social work Nursing Pharmacist Dietary Occupational therapy Recreational therapy Vocational rehabilitation Chaplaincy	It is preferable to have one provider coordinate the patient's care and consult with the team. Collaborative management of MDD improves symptoms of depression and treatment adherence (Fann et al., 1995).	Randomized outcome studies

Table 7.C.10—Continued

VA/DoD Clinical Practice Guidelines	VA/DoD Interventions	Evidence from the Literature	Level of Evidence
Acute suicide risk, acute violence risk due to mental illness, grave disablement due to mental illness	Inpatient hospitalization: Specialized treatments only available or best provided in a hospital include: electro-convulsive therapy (ECT) close monitoring and daily titration of medication with disabling side effects or toxicity constant staff observation as part of an intensive behavior-modification program close monitoring of behavior in an episodic disorder close monitoring of vital signs or need for multiple daily laboratory or electrophysiological testing		Expert opinion, randomized outcome studies

depression and is as effective as ECT in reducing depressive symptoms. Table 7.C.10 compares the guidelines to the evidence base.

Training. Many studies have measured patient adherence to treatment and the competence with which treatment is delivered (DeRubeis et al., 2005; Dimidjian et al., 2006). Some studies have found that the therapist's expertise can make a difference in the patient's improvement, particularly when the patient's depression is more severe and difficult to treat (DeRubeis et al., 2005; Hollon, Thase, and Markowitz, 2002; Jane-Llopis et al., 2003). For example, for CT, the quality of the treatment is important and it may be difficult to provide high-quality CT, even in clinical trials. Hollon, Thase, and Markowitz (2002) report that therapists at different sites did less well because they had less experience; however, they "caught up" with other, more-experienced therapists as they received additional training and experience. These authors do not provide details on the amount of training and experience required to increase the quality of implementation of the psychotherapy (in this case, CT).

Other research has also shown that training can affect remission. A large meta-analysis found that patients with severe depression had better outcomes when they were treated by trained personnel instead of by lay personnel (Jane-Llopis et al., 2003). The VA/DoD guidelines mention training briefly when they discuss psychotherapy, indicating that "referral should be made to a therapist experienced in the use of at least one of these [evidence-based] psychotherapies for the treatment of depression" (Veterans Health Administration, 2004, p. 135).

Traumatic Brain Injury (TBI)

Literature Review. To find studies that focused on treatment of TBI, we conducted a literature review, using PubMed (MEDLINE), PsychINFO, and Google Scholar and limiting our searches to English-language articles from 1998 to the present. We

also found additional references within the papers and used sources from the papers that we thought would provide further background, regardless of the year of publication. We used the following search terms: “traumatic brain injury”; “brain injury”; “head injury”; “TBI”; “post concussion syndrome”; “post concussional disorder.”

When possible, we selected articles that focused on treatments among a military population; however, we also reviewed the literature focusing on civilian populations. Ultimately, we reviewed 25 treatment-outcome studies, 14 meta-analyses and reviews, and seven sets of treatment guidelines. Below, we summarize the evidence of effectiveness for each treatment, based on our review findings.

Description of TBI. Traumatic brain injury (TBI) is the most common cause of death and chronic disability for people under the age of 35 (Ministry of Health [Singapore], no date). In the United States, the estimated annual incidence of hospitalizations for TBI is approximately 200 per 100,000 persons (Chua et al., 2007).

Severity of TBI is an important determinant of outcome (*Veterans Health Initiative*, 2004). *Severity* (e.g., mild, moderate, severe) is defined by using one of three indexes: score on the Glasgow Coma Scale (GCS), which reflects the patient’s eye-opening, motor, and verbal responses; length of loss of consciousness (LOC); and length of post-traumatic amnesia (PTA). The *GCS* is a 15-point scale based on ratings of the patient’s best eye-opening, motor, and verbal responses. Lower scores indicate worse functioning. A score of GCS 13 to 15 is considered mild injury, a score of 9 to 12 denotes moderate injury, and a score of 3 to 8 denotes severe injury. *Loss of consciousness* is assessed as the length of time the patient is nonresponsive, with longer nonresponsive times associated with more severe TBI. *Post-traumatic amnesia* is the interval from when the person regains consciousness until he/she is able to form memories for ongoing events. A PTA of more than 24 hours is deemed severe TBI, and PTA duration of more than four weeks is indicative of a very severe brain injury (Lewin, Marshall, and Roberts, 1979).

Mild TBI. Approximately 80 percent of patients with TBIs have mild TBI (Alexander, 1995). Diagnostic criteria for mild TBI include loss of consciousness (for less than 30 minutes), memory loss (for less than 24 hours), and no persistent neurological deficits (Kay et al., 1993).

For the majority of individuals, symptoms of mild TBI have usually resolved by three months after injury (Levin, Mattis, and Ruff, 1987; Rutherford, 1989); however, there is a substantial literature indicating that symptoms may last for six to 12 months or longer in some cases (R. W. Evans, 1992; J. H. Jones et al., 1992; Leininger et al., 1990). Such individuals may need ongoing medical treatment (Jay, Goka, and Arakaki, 1996). The most common physical problems following mild TBI include the following:

1. headache and musculoskeletal pain
2. disturbance of the vestibular system, which controls eye movements and equilibrium
3. visual disturbance
4. fatigue.

Common cognitive, emotional, and behavioral signs and symptoms include the following (Jay, Goka, and Arakaki, 1996):

- memory impairment
- depression/ irritability/anxiety
- loss of self-esteem
- job loss/disruption
- denial
- difficulties with social interactions
- strained family relationships
- lack of initiative
- problems finding words
- decreased ability to concentrate
- poor impulse control
- slowed information processing
- behavioral/personality changes
- uncontrolled repetition of a response despite absence of the stimulus (perseveration).

Moderate to Severe TBI. Recovery after moderate to severe TBI is variable and depends on a variety of factors, including the extent and degree of the initial injury (*Veterans Health Initiative*, 2004). The Rancho Los Amigos Levels of Cognitive Functioning Scale (Hagan et al., 1979) is typically used to characterize the level of functioning and the level of cognitive and behavioral impairment after moderate to severe TBI (see Table 7.C.11). The scale can be used as a tool to make recommendations about where a patient should receive care and to demonstrate to family the different stages of recovery.

Acute and chronic symptoms associated with TBI include physical, emotional, and cognitive complaints, which are referred to as *post-concussion syndrome* (*Veterans Health Initiative*, 2004). Defining symptoms for this syndrome include the following:

- head injury with concussion (see definition below)
- attention or memory difficulties on formal testing
- three or more of the following symptoms: fatigue, sleep disorders, headache, dizziness, irritability, anxiety/depression, personality changes, poor social or occupational functioning.

Table 7.C.11
Rancho Los Amigos Levels of Cognitive Functioning Scale

Level		Description ^a	Care at This Level ^b
I	No response	Unresponsive to sound, light, touch, or pain. The individual appears to be in a deep sleep.	Care is focused on preventing complications.
II	Generalized Response	Individual reacts inconsistently in a nonspecific manner to stimulation. May be gross body movements, unintelligible vocalizations, etc. Earliest response is frequently to severe pain. Responses to stimuli often are delayed.	Increase level of responsiveness, initiation of responses, localization of specificity of responses. Sensory stimulation is used.
III	Localized Response	Reacts to specific stimuli (e.g., eye blink to strong light, turns toward sound). Responses are often inconsistent. May inconsistently follow simple, direct commands (e.g., close your eyes, squeeze my fingers).	Begin to work on simple activities of daily living (ADLs), such as face washing. Work on mobility and truncal stability. Establish voice and stimulate swallowing.
IV	Confused—Agitated	Alert and active but has severely limited ability to process information. Disoriented and responds primarily to internal stimuli. Behavior is bizarre or not purposeful, and the ability to focus and sustain attention is extremely limited. Does not differentiate among people or things. Speech may be incoherent or bizarre. Short-term memory is impaired: Patient may fill memory gaps with fabrications.	Reduce agitation and increase consistency and functionality of responses. Work on functional activities, such as activities of daily living, mobility, and establishing a consistent yes/no response.
V	Confused—Inappropriate	Alert and active and can respond consistently to simple commands. Disoriented and requires redirection but is not responding primarily to internal stimuli. Short-term memory is impaired; patient may fill memory gaps with fabrications. May be able to perform basic activities of daily living with assistance and supervision.	Work on attention, memory, and <i>executive functions</i> (i.e., brain processes that guide behavior). Work on functional activities and assist with dressing and grooming.
VI	Confused—Appropriate	Alert and inconsistently oriented. Follows simple directions consistently and begins to show carryover of new learning. Recognizes staff and has increased awareness of self, family, and others.	Decrease confusion; improve independence, cognition, and information-processing speed. May require cues or checklists to complete activities of daily living.
VII	Automatic—Appropriate	Alert and oriented to person, place, and time but shows a shallow awareness of medical condition. Performs self-care and daily routines with supervision but in a robotlike manner. Performance may deteriorate in unfamiliar circumstances. Can remember and use new information but at a reduced rate. Judgment and problem-solving remain impaired.	Appropriate in highly structured environment, but still shows impaired judgment and limited insight into deficits.

Table 7.C.11—Continued

Level	Description ^a	Care at This Level ^b
VIII Purposeful— Appropriate	Alert and oriented. Can recall and integrate past and current events. Shows carryover of new learning and is independent, within physical limitations, at home and in the community. Cognitive abilities may still be lower than premorbid levels.	Able to better function without supervision. Treatment at this level could be provided in an outpatient setting. Focus on ADLs, education for safe participation in leisure activities. Provide references for community resources. Provide continued exposure to community activities, increasing the individual's responsibility for planning and carrying out the activities.

^a Adapted from C. D. Hagan, D. Malkus, P. Durham, and K. Bowman, Levels of cognitive functioning, in *Rehabilitation of the Head-Injured Adult: Comprehensive Physical Management*. Downey, Calif.: Professional Staff Association, Rancho Los Amigos Hospital, 1979.

^b Adapted from *Veterans Health Initiative, Traumatic Brain Injury—Independent Study Course*, Washington, D.C.: Department of Veterans Affairs, 2004.

Additional Symptoms. Other symptoms of TBI include nausea/vomiting; hearing loss, tinnitus; visual changes (blurry vision, diplopia, difficulty focusing, visual-field cuts); focal neurological changes (e.g., weakness, sensory changes, reflex changes); imbalance/problems with coordination; and a variety of cognitive and language disorders.

None of these additional symptoms is unique to mild, moderate, or severe TBI. However, severity of cognitive dysfunction tends to increase with the severity of the TBI. In addition, focal neurological problems (e.g. hemiparesis, visual-field cuts, neglect, language problems [aphasia]) tend to occur in patients who have more focal lesions, which are more consistent with more severe TBI.

Concussion. *Concussion* is a complex pathophysiological process affecting the brain, caused by a direct blow to the head, face or neck, or elsewhere on the body, with force transmitted to the head. Defining features of concussion include the following:

- Rapid onset of short-lived impairment of neurological function that resolves spontaneously
- Neurological changes, but symptoms largely reflect a functional disturbance rather than structural injury
- May or may not involve loss of consciousness
- Normal neuroimaging studies.

TBI in the Afghanistan and Iraq Conflicts. Compared with soldiers in previous wars, a greater percentage of soldiers in the Afghanistan and Iraq conflicts who are wounded in combat have TBI. The Joint Theater Trauma Registry, which is compiled by the U.S. Army Institute of Surgical Research, reported that 22 percent of wounded soldiers from the conflicts in Afghanistan and Iraq have had injuries to the head, face, or neck (Okie, 2005). However, prevalence of TBI is probably higher because some cases of closed brain injury, caused by hard blows to the head, are not diagnosed properly (Okie, 2005).

There are three basic reasons for the higher proportion of TBIs among soldiers wounded in the current conflicts. First, the Kevlar body armor and helmets protect soldiers from bullets and shrapnel, improving overall survival rates; however, the helmets cannot prevent closed brain injuries or completely protect the face, head, and neck (Okie, 2005). Second, both medical and lay communities are more knowledgeable about brain injuries, and more-extensive literature is available on concussion and mild TBI (Warden, 2006), making diagnosis more likely. Third, explosive devices are used more extensively in the current conflicts, leading to blast injuries (Army Medical Department [AMEDD] evacuation statistics, OEF/OIF).

All of these factors contribute to the increased number of TBIs in the current conflicts—more than 2,000 documented cases since the conflicts began (Grady, 2006; PCCWW, 2007). A recent analysis of 433 individuals with TBI who were treated at

the Walter Reed Army Medical Center indicated that mild TBI accounted for less than half the sample, and 56 percent of the group had moderate and severe TBI. Closed brain TBI accounted for 88 percent of the total group (Warden, 2006). These numbers may reflect selection bias, because the people being screened at Walter Reed had more severe injuries overall (not just TBI), which is why they were at that facility. Thus, even this high rate of moderate and severe TBI may not accurately reflect the rate overall (personal communication with Michael Yochelson, M.D., Director, Head Injury Program, National Rehabilitation Hospital, November 2007).

Guidelines for Treatment of TBI. *Cardiopulmonary resuscitation* is the first priority in initial care of the brain-injured patient. Next is *control of intracranial pressure* to maintain oxygen flow to the brain (Chua et al., 2007). A panel of 22 experts, assembled by the Brain Trauma Foundation (2007), developed TBI treatment guidelines. The panel conducted comprehensive electronic database searches of the neurotrauma literature up to April 2006. Two experts independently reviewed each study and classified it according to the level of evidence available, which in turn suggests the level of confidence with which study findings can be viewed.

The levels of recommendations defined by the panel reflect these levels of confidence:

- Level I recommendations represent principles of patient management that reflect a high degree of clinician certainty.
- Level II recommendations reflect a moderate degree of clinical certainty.
- For Level III recommendations, the degree of clinical certainty is not established.

There is only one Level I recommendation: Steroids should not be used to manage increased intracranial pressure. Details of the panel's clinical recommendations and the evidence to support them are described in Table 7.C.12.

Guidelines and Practice Standards for TBI Rehabilitation. We now focus on rehabilitation for TBI patients, describing the types of rehabilitative services often used, including visual-spatial, cognitive, linguistic, and emotional and behavioral.

Rehabilitation involves several domains, including physical, communication and language, vocational, sexual, and cognitive domains (National Guideline Clearinghouse, 2007). For example, individuals can experience physical complications, such as seizures, neuroendocrine dysfunction, and gastrointestinal complications. They may also have cognitive difficulties, such as problems with attention and concentration, reasoning and problem-solving, and/or memory.

Various assessment instruments can help track improvements in overall responsiveness. It is also important to conduct a neuropsychological evaluation, which includes measures of general intelligence, attention and concentration, learning and memory, language, visual-spatial abilities, and *executive functions* (e.g., brain processes

Table 7.C.12
TBI Treatment Recommendations and Supporting Evidence

Treatment Guideline and Level	Summary of Supporting Evidence
<p>Blood-pressure regulation and oxygenation</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Blood pressure should be monitored and hypotension avoided.</p> <p><i>Level III:</i> Oxygenation should be monitored and hypoxia avoided.</p>	<p>In TBI patients, secondary brain injury may result from systemic hypotension and hypoxemia (Cooke, McNicholl, and Byrnes, 1995; Stochetti, Furlan, and Volta, 1996), which can increase morbidity and mortality (Brain Trauma Foundation, American Association of Neurological Surgeons, and Congress of Neurological Surgeons, 2007). Clinical intuition indicates that correcting hypotension and hypoxemia improves outcomes; however, clinical studies have not provided supporting data (Brain Trauma Foundation et al., 2007).</p>
<p>Hyperosmolar therapy</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Mannitol is effective for controlling raised intracranial pressure (ICP) at doses of 0.25 gm/kg to 1 g/kg body weight. Arterial hypotension should be avoided.</p> <p><i>Level III:</i> Restrict mannitol use prior to ICP monitoring to patients with signs of transtentorial herniation or progressive neurological deterioration not attributable to extracranial causes.</p>	<p>Mannitol is widely used to control raised ICP following TBI. Its use is advocated in two circumstances: A single short-term administration can have short-term benefits, during which further diagnostic procedures (e.g., computerized tomography [CT] scan) and interventions (e.g., evacuation of intracranial mass lesions) can be accomplished. Mannitol has also been used as a prolonged therapy for raised ICP. There is no evidence to recommend repeated, regular administration of mannitol over several days (Brain Trauma Foundation et al., 2007). Current evidence is not sufficient to make recommendations on use, concentration, and method of administration of hypertonic saline for the treatment of traumatic intracranial hypertension.</p>
<p>Infection prophylaxis</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Perioperative antibiotics for intubation should be administered to reduce the incidence of pneumonia. However, they do not change length of stay or mortality.</p> <p><i>Level III:</i> Routine ventricular catheter exchange or prophylactic antibiotic use for ventricular catheter placement is not recommended to reduce infection. Early extubation in qualified patients can be done without increased risk of pneumonia.</p>	<p>There is no support for use of prolonged antibiotics for systemic prophylaxis in intubated TBI patients, given the risk of selecting for resistant organisms. A single study supports the use of a short course of antibiotics at the time of intubation to reduce the incidence of pneumonia (Brain Trauma Foundation et al., 2007).</p>

Table 7.C.12—Continued

Treatment Guideline and Level	Summary of Supporting Evidence
<p>Deep-vein thrombosis (DVT) prophylaxis</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> There are insufficient data to support a Level II recommendation.</p> <p><i>Level III:</i> Graduated compression stockings or intermittent pneumatic compression stockings are recommended, unless lower-extremity injuries prevent their use. Use should be continued until patients are ambulatory. Low molecular weight heparin or low-dose unfractionated heparin should be used in combination with mechanical prophylaxis. However, there is an increased risk for expansion of intracranial hemorrhage. There is insufficient evidence to support recommendations regarding the preferred agent, dose, or timing of pharmacologic prophylaxis for DVT.</p>	<p>There is evidence to support the use of ICP monitoring in severe TBI patients at risk for intracranial hypotension.</p>
<p>Indications for intracranial monitoring</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Intracranial pressure should be monitored in all salvageable patients with a severe TBI and an abnormal CT. An <i>abnormal CT scan</i> of the head is one that reveals hematomas, contusions, swelling, herniation, or compressed basal cisterns.</p> <p><i>Level III:</i> ICP monitoring is indicated in patients with severe TBI with a normal CT scan if two or more of the following features are noted at admission: age over 40 years, unilateral or bilateral motor posturing, or systolic blood pressure <90 mm Hg.</p>	
<p>Intracranial pressure thresholds</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Treatment should be initiated with ICP thresholds >20 mm Hg.</p> <p><i>Level III:</i> A combination of ICP values and clinical and brain CT findings should be used to determine the need for treatment.</p>	

Table 7.C.12—Continued

Treatment Guideline and Level	Summary of Supporting Evidence
<p>Cerebral perfusion thresholds</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Aggressive attempts to maintain cerebral perfusion pressure (CPP) >70 mm Hg with fluids and pressors should be avoided because of the risk of adult respiratory distress.</p> <p><i>Level III:</i> CPP of <50 mm Hg should be avoided. The CPP value to target lies within the range of 50–70 mm Hg. Patients with intact pressure autoregulation tolerate higher CPP values. Ancillary monitoring of cerebral parameters that include blood flow, oxygenation, or metabolism facilitates CPP management.</p>	<p>At this time, it is not possible to posit an optimal level of CPP to target to improve outcome in terms of avoiding clinical episodes of ischemia and minimizing the cerebral vascular contributions to ICP instability (Brain Trauma Foundation et al., 2007).</p>
<p>Brain oxygen monitoring and thresholds</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> There are insufficient data to support a Level II recommendation.</p> <p><i>Level III:</i> Jugular venous saturation (<50%) or brain tissue oxygen tension (<15 mm Hg) are treatment thresholds. Jugular venous saturation or brain tissue oxygen monitoring measures cerebral oxygenation.</p>	
<p>Anesthetics, analgesics, and sedatives</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Prophylactic administration of barbiturates to induce burst suppression electroencephalogram (EEG) is not recommended. High-dose barbiturate administration is recommended to control elevated ICP refractory to maximum standard medical and surgical treatment. Hemodynamic stability is essential before and during barbiturate therapy. Propofol is recommended for the control of ICP, but not for improvement in mortality or 6-month outcome. High-dose Propofol can produce significant morbidity.</p>	<p>Analgesics and sedatives are a common management strategy for ICP control, although there is no evidence to support their efficacy in this regard and they have not been shown to positively affect outcomes (Brain Trauma Foundation et al., 2007).</p>
<p>Nutrition</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Patients should be fed to attain full caloric replacement by day 7 post-injury.</p>	<p>Data indicate that feeding should occur by the end of the first week. There is no established documentation that one method of feeding is better than another or that early feeding prior to 7 days improves outcomes (Brain Trauma Foundation et al., 2007).</p>

Table 7.C.12—Continued

Treatment Guideline and Level	Summary of Supporting Evidence
<p>Antiseizure prophylaxis</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Prophylactic use of phenytoin or valproate is not recommended for preventing late post-traumatic seizures (PTS). Anticonvulsants are indicated to decrease the incidence of early PTS (within 7 days of injury). However, early PTS is not associated with worse outcomes.</p>	<p>The rationale for use of seizure prophylaxis is that TBI patients experience a relatively high incidence of PTS and there are benefits to preventing seizures following TBI (Temkin, Dikmen, and Winn, 1991; Yablon, 1993). Although treatment with anticonvulsants can reduce incidence of early post-injury seizures, there is no support for the use of anticonvulsants for the prevention of late PTS; therefore, it is not currently recommended (Brain Trauma Foundation et al., 2007; Bullock et al., 1996; Schierhout and Roberts, 2001).</p>
<p>Hyperventilation</p> <p><i>Level I:</i> There are insufficient data to support a Level I recommendation.</p> <p><i>Level II:</i> Prophylactic hyperventilation (PaCO₂ of ≤ 25 mm Hg) is not recommended.</p> <p><i>Level III:</i> Hyperventilation is recommended as a temporizing measure for the reduction of elevated ICP. Hyperventilation should be avoided during the first 24 hours after injury, when cerebral blood flow is often critically reduced. If hyperventilation is used, jugular venous oxygen saturation or brain tissue oxygen tension measurements are recommended to monitor oxygen delivery.</p>	<p>Hyperventilation is <i>not</i> recommended in the first 24 hours after severe brain injury, because it causes cerebral vasoconstriction and reduces CPP (Chua et al., 2007).</p>
<p>Steroids</p> <p><i>Level I:</i> The use of steroids is not recommended for improving or reducing intracranial pressure. In patients with moderate or severe TBI, high-dose methylprednisolone is associated with increased mortality and is contraindicated.</p>	<p>Routine use of steroids is <i>not</i> recommended (Roberts, 2000; Whyte et al., 2005).</p>

SOURCE: Adapted from Brain Trauma Foundation, American Association of Neurological Surgeons, and Congress of Neurological Surgeons. Guidelines for the management of severe and traumatic brain injury, 3rd edition. *Journal of Neurotrauma*, Vol. 24, 2007.

NOTE: Level I recommendations present principles of patient management that reflect a high degree of clinical certainty; Level II recommendations reflect a moderate degree of clinical certainty. For Level III recommendations, the degree of clinical certainty is not established.

that guide behavior). Sometimes, cognitive deficits can be managed by medication. The most commonly used medications are neurostimulants, antidepressants, SSRIs, dopaminergic agents, and cholinesterase inhibitors. However, the scientific literature shows no pharmacological intervention to improve post-TBI cognitive deficits (*Veterans Health Initiative*, 2004).

Emotional and behavioral problems are also common after TBI. Therapies for addressing these problems include cognitive-behavioral interventions, such as self-monitoring, relaxation techniques, and anger management; supportive therapies that address issues of poor self-esteem; family or marital therapy; spiritual guidance; and education (*Veterans Health Initiative*, 2004). Obtaining collateral information from family members is important, because many individuals with TBI are not aware of their impairments.

Turner-Stokes and Wade (2004) provide summary guidelines for assessment, treatment, and referral to rehabilitation (see Figure 7.C.1).

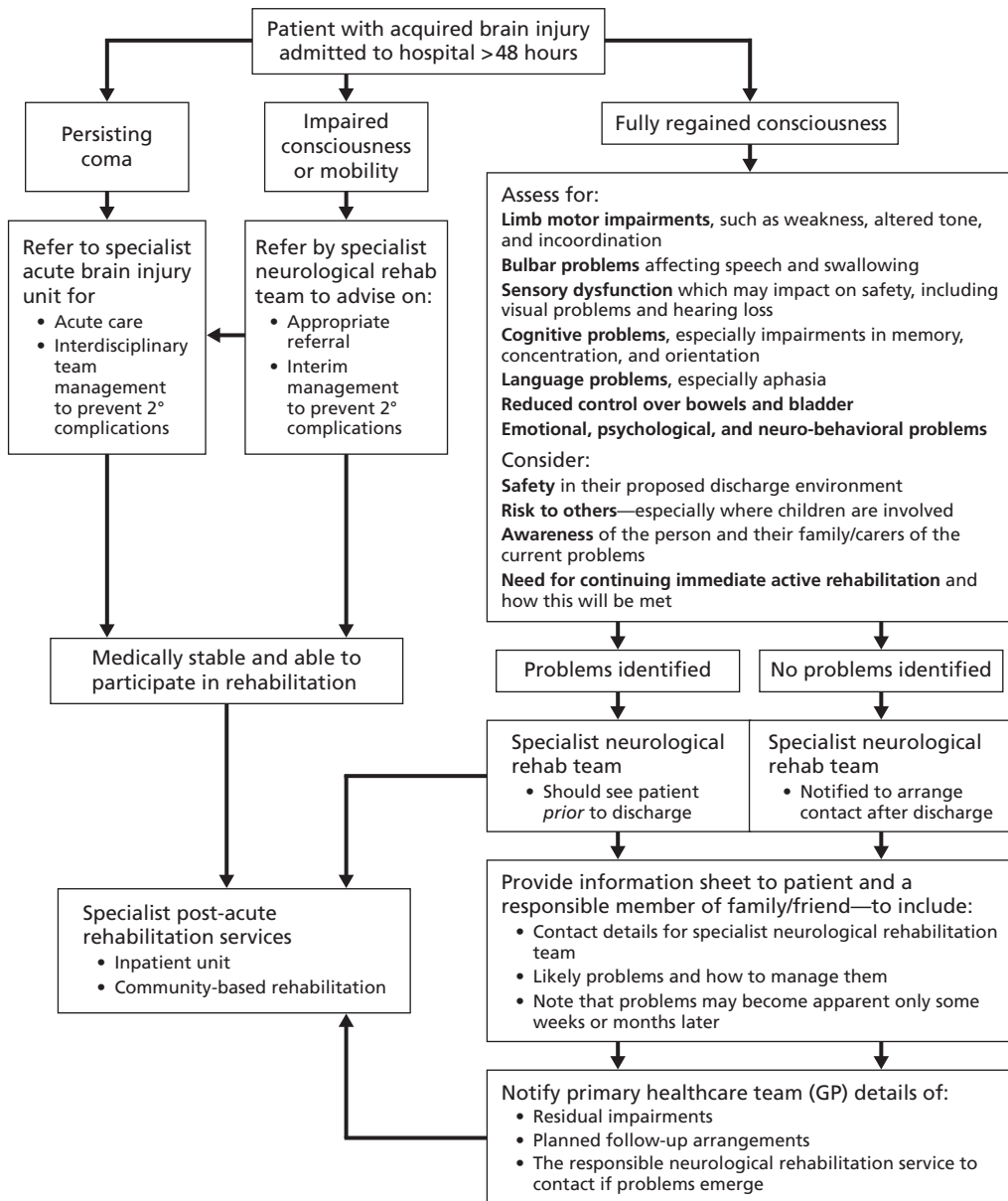
Rehabilitation for Mild TBI. Treatment of mild TBI includes education, a period of rest and observation, and treatment of persistent or disabling symptoms, such as headache (*Veterans Health Initiative*, 2004).

Pharmacologic interventions can be used to treat specific symptoms, such as headache and sleep disorder. Typically, post-traumatic headache is treated with nonsteroidal anti-inflammatory drugs (e.g., aspirin, ibuprofen, sodium naproxen), Midrin, and triptans. Individuals who experience headaches and problems with depression, anger, irritability etc., may benefit from valproate acid. Selective serotonin reuptake inhibitors may help to alleviate depression and irritability following TBI (Fann, Uomoto, and Katon, 2001).

Nonpharmacologic interventions include providing individuals with educational materials regarding such symptoms as fatigue, irritability, and mood swings. It is also important to provide referrals for additional assessment (e.g., audiologist, speech and language pathologist, psychiatrist).

Rehabilitation for Moderate to Severe TBI. Following acute emergency care and medical stabilization, individuals with moderate to severe TBI usually require a period of inpatient rehabilitation. Such services are best provided in an established interdisciplinary brain-injury program. The goal in the early rehabilitation phase is to help the individual restore maximal functional independence. Comprehensive, integrated post-acute programs are designed to serve clients with impaired awareness and other cognitive and behavioral difficulties (Sander et al., 2001). Patients who participate in these types of programs tend to show positive changes and improved functioning in independent living, productivity, and social functioning at both discharge (Prigatano et al., 1994) and over the longer term (Sander et al., 2001). As length of stay in inpatient rehabilitation after TBI has decreased, post-acute rehabilitation programs have become increasingly important in helping patients return to their homes and communities

Figure 7.C.1
Overview of Assessment, Treatment, and Rehabilitation Referral for TBI Patients



SOURCE: L. Turner-Stokes and D. Wade. Rehabilitation following acquired brain injury: Concise guidance. *Clinical Medicine*, Vol. 4, No. 5, January 2004, Figure 1, p. 65. Copyright © 2004 Royal College of Physicians. Reproduced with permission.

(Sander et al., 2001). In addition, long-term services may help prevent decline in individual cases (Sander et al., 2001).

When patients are in pain, the drug of choice is the one that controls the pain most effectively with the fewest central nervous system effects and drug-drug interactions. Acetaminophen is often used because it is safe, inexpensive, and has very little central nervous system interaction. Many hospitals automatically order it to be given on an as-needed basis so that nurses do not have to call doctors; at home, people can buy it over the counter. Acetaminophen is administered using a dosing schedule rather than on-demand dosing (*Veterans Health Initiative*, 2004).

Early rehabilitation for moderate to severe TBI includes

1. getting patients out of bed and into street clothes (i.e., not hospital gowns)
2. avoiding over- or understimulation
3. avoiding cognitively impairing medications; using cognitively stimulating ones
4. using behavior-modifying therapies and medications
5. assessing and managing pain regularly
6. removing the catheter early and helping to use the bathroom as often as needed.

Inpatient interdisciplinary programs generally provide three hours or more of formal therapy (physical, occupational, speech, recreational, neuropsychological) per day. Such programs include therapists and nurses, along with the patient, the patient's family, and the doctor all working together to reach common goals (*Veterans Health Initiative*, 2004).

Because co-occurring problems may impede the rehabilitation process, they should be assessed and managed. Common co-occurring problems include, but are not limited to, wound care; pressure sores; spasticity; post-traumatic epilepsy; associated orthopedic injuries (e.g., fractures); heterotopic ossification (bone formation around a joint); deep venous thrombosis; and such infections as of the urinary tract or pneumonia.

Approaches to Community Integrated Rehabilitation. Trudel, Nidiffer, and Barth (2007) provide a framework for community integrated rehabilitation that is based on work by Malec and Basford (1996). *Community rehabilitation* should include neurobehavioral programs, residential programs, comprehensive holistic day-treatment programs, and home-based programs. Briefly, *neurobehavioral programs* focus on treating mood, behavior, and executive functions in a safe residential, nonhospital setting. These programs, which typically have interdisciplinary teams, emphasize development of functional skills (Wood et al., 1999). Residential programs were initially developed for individuals who required extended rehabilitation and 24-hour supervision but did not have access to adequate outpatient services. More recently, the lines have been blurred between neurobehavioral and community programs (Trudel, Nidiffer, and

Barth, 2007). Comprehensive holistic day-treatment programs target awareness, cognitive functions, social skills, and vocational preparation through individual, group, and family interventions delivered by an interdisciplinary team (Ben-Yishay et al., 1987). Finally, home-based programs involve a variety of services and supports so that the individual can live at home. There is usually no identified treatment team, although a number of health- and social-service systems may be collaborating to provide treatment (Vander Laan et al., 2001).

Levels of Evidence Supporting Treatment. In the following discussion, we describe the evidence for the effectiveness of specific TBI treatments.

Patient Education. Comper et al. (2005) reviewed seven studies in which patients were given an information intervention. The interventions included reassurance, information on the recovery process, or strategies for managing mild-TBI symptoms. Comper and associates found sufficient evidence to conclude that interacting with patients in a supportive way and providing information about symptoms were effective in helping individuals recover from mild TBI.

Cognitive Rehabilitation. *Cognitive rehabilitation* is “a systematic functionally oriented service of therapeutic activities that is based on assessment and understanding of the patient’s brain-behavioral deficits” (Cicerone et al., 2000, pp. 1596–1597). Personality and behavioral change are fairly common after TBI (Ommaya et al., 1996).

Cicerone and colleagues (2000) reviewed 655 articles on standards, guidelines, and options for cognitive rehabilitation. Of the 29 randomized controlled studies they found, 20 provided clear evidence that cognitive rehabilitation is effective. Of 64 controlled studies that were reviewed, only two studies failed to show improved functioning among participants who received cognitive rehabilitation (Cicerone et al., 2000).

A 2003 report from the members of the Task Force on Cognitive Rehabilitation (Cappa et al., 2003) reviewed the available evidence on the effectiveness of cognitive rehabilitation. They noted that there are few studies in this area and that the studies are often of poor quality. However, the task-force report concluded that there is evidence, of varying levels, for some forms of cognitive rehabilitation in patients with TBI. These forms include aphasia therapy, rehabilitation of unilateral spatial neglect, attentional training in the post-acute stage after TBI, the use of electronic memory aids in memory disorders, and the treatment of apraxia with compensatory strategies (Cappa et al., 2003).

Turner-Stokes and Wade (2004) suggest that there is good evidence for the effectiveness (Chesnut et al., 1999; High, Boake, and Lehmkuhl, 1995; Turner-Stokes, 1999) and cost benefits (Cardenas et al., 2001) of rehabilitation. For example, studies have shown that cognitive-behavioral psychotherapy and cognitive remediation therapy can diminish psychological distress and improve functioning among mild and moderate TBI patients (Tiersky et al., 2005). In addition, studies have shown the importance of beginning post-acute rehabilitation as early as possible, because receiving treatment early can substantially improve outcomes (High et al., 2006). Studies have also shown

that increasing the intensity of rehabilitation therapy can accelerate recovery of personal independence, enhance functional recovery, and shorten hospital stays (Shiel et al., 2001). Furthermore, patients who receive intensive cognitive rehabilitation show clinically significant improvement in their community functioning compared with patients who receive standard neurorehabilitation (Cicerone et al., 2004).

A 2007 Cochrane review (Turner-Stokes et al., 2007) assessed the effects of multidisciplinary rehabilitation following brain injury in adults ages 16 to 65. They found ten trials of good methodological quality. Overall, for mild TBI, providing information and advice was usually more appropriate than having the person undergo intensive rehabilitation. For the groups with moderate to severe TBI, there was strong evidence that more intensive programs produced earlier functional gains. There was moderate evidence that continued outpatient therapy could help sustain the gains made in early post-acute rehabilitation.

Rehabilitation appears to be most effective when the relevant health- and social-care practitioners work as a coordinated interdisciplinary team toward a common set of goals (Langhorne and Duncan, 2001). More research is needed on effective approaches to rehabilitation, in part because rehabilitation is an individual and long-term process, which makes it difficult to draw general conclusions (Turner-Stokes et al., 2007). The small numbers and heterogeneity of brain-injured patients pose additional challenges (Turner-Stokes and Wade, 2004).

Pharmacotherapy. Comper and colleagues (2005) conducted one of the most recent reviews of treatments for mild traumatic brain injury. The results for pharmacotherapy were based on eight studies that evaluated use of a wide range of drugs, including the antidepressant amitriptyline as a treatment for both depression and headaches; sertraline; dihydroergotamine, which is a migraine-abortive preparation; and the anti-diuretic medication desmopressin acetate to improve mental performance. They concluded that there is no solid evidence that any specific drug treatment is effective for one or more symptoms of mild TBI.

Chang and Lowenstein (2003) reviewed studies on antiepileptic drug prophylaxis in severe traumatic brain injury. They found that, for adult patients with severe TBI, prophylaxis with phenytoin was effective in decreasing the risk of early post-traumatic seizures, but it was not effective in preventing late post-traumatic seizures. They suggest that further studies are needed for mild TBI and the use of newer antiepileptic drugs.

Progesterone. A recent pilot clinical trial assessed the potential safety and benefit of administering progesterone to patients with acute TBI: Laboratory evidence suggests that progesterone has neuroprotective effects (Wright et al., 2007). The trial established that progesterone caused no discernable harm and appeared to have some potential benefit.

Corticosteroids. Alderson and Roberts (1997) reviewed studies of corticosteroids to treat acute TBI using randomized trials available by March 1996. It is known that in the acute period of TBI, corticosteroids are not recommended for improving or reduc-

ing increased intracranial pressure (Roberts, 2000; Whyte et al., 2005). Alderson and Roberts confirmed that, despite 25 years of randomized controlled trials in this area, the effectiveness of using corticosteroids to treat TBI patients after this acute period is still unclear.

Excitatory Amino Acid Inhibitors. Willis, Lybrand, and Bellamy (2007) conducted a review to assess the efficacy of excitatory amino acid inhibitors on improving patient outcomes following brain injury. Of the 12 trials they found that fit the criteria of being randomized, double-blind controlled trials, data were available for two of these trials. They did not find any differences in mortality between those patients who received excitatory amino acid inhibitors and those who received placebo; therefore, they conclude that efficacy for excitatory amino acid inhibitors remains unproven.

Hypothermia. Harris and colleagues (2002) conducted a meta-analysis of the role of hypothermia in the management of severe brain injury. Their review of studies in this area indicated that hypothermia is not beneficial in the management of severe head injury.

VA/DoD Guidelines for TBI. Table 7.C.13 describes the current VA/DoD practice guidelines for TBI treatment. The guidelines are very broad and do not directly address specific cognitive and behavioral interventions that are reported in the rehabilitation literature.

Training. There are currently no guidelines that specifically address training. Expert opinion suggests that training should include the following (personal communication with Michael Yochelson, M.D., November 2007):

1. Medical Directors for an inpatient or outpatient TBI program should have completed a residency in Physical Medicine and Rehabilitation (PM&R) or neurology and either (a) a fellowship in either neurorehabilitation or brain-injury rehabilitation or (b) have at least one year's experience in the field.
2. Physicians practicing inpatient or outpatient TBI rehabilitation should have completed a residency in PM&R or neurology that included TBI rehabilitation training or have worked with a physician with experience in the field for at least three months. Physicians in other fields with an interest in TBI should either take continuing medical education (CME) courses in the field or work closely for at least six months with a physician who has experience in the field.
3. Psychologists or neuropsychologists who work in an inpatient or outpatient TBI program should have significant experience in evaluating and managing patients with TBI. They should also be experienced at performing and accurately interpreting neuropsychological examinations.
4. Physical and Occupational Therapists who work in an inpatient or outpatient TBI program should have at least six months' experience working with a therapist experienced in the rehabilitation of TBI patients.

Table 7.C.13
VA/DoD Guidelines for TBI Treatment

VA Clinical Practice Guidelines for TBI ^a	VA Interventions	Level of Evidence
Neurocognitive assessment	Use the Military Acute Concussion Evaluation tool	Expert opinion [evidence further suggests that formal neuropsychological testing by a <i>neuropsychologist or neurologist</i> is indicated when the assessment identifies abnormalities consistent with cognitive impairment]
Headache management	Use acetaminophen; avoid tramadol, narcotics, NSAIDs, ASA, or other platelet inhibitors until CT confirmed negative	Expert opinion [management of other symptoms (fatigue, inattention, agitation, depression, etc.) is also important]
Educational information	Provide educational information sheet to all positive mild-TBI patients	Expert opinion Some randomized outcome studies
Trauma care	Emergency Room /Trauma Center/ICU	Expert opinion
Specialized acute inpatient rehabilitation	High-intensity rehabilitation (3–5 hr/day in which patient actively participates)	Some randomized outcome studies
Sub-acute rehabilitation	Lower-intensity rehabilitation (<3 hr/day in which patient actively participates) Ventilator care Coma care	Some randomized outcome studies
Post-acute rehabilitation	Outpatient day treatment Home care	Some randomized outcome studies
Community re-entry	Transitional living Independent living Vocational rehabilitation Supportive employment	Some randomized outcome studies
Extended care	Skilled Nursing Facility Neurobehavioral management Assisted living Adult day care Respite care	Expert opinion

NOTE: NSAIDS = non-steroidal anti-inflammatory drugs; ASA = acetylsalicylic acid (or aspirin).

^a From *Veterans Health Initiative: Traumatic Brain Injury–Independent Study Course*, Washington, D.C.: Department of Veterans Affairs, 2004 (<http://www1.va.gov/vhi/docs/TBI.pdf>) and Defense and Veterans Brain Injury Center, Working Group on the Acute Management of Mild Traumatic Brain Injury in Military Operational Settings. *Clinical Practice Guidelines and Recommendations*, December 22, 2006.

- Speech Language Pathologists who work in an inpatient or outpatient TBI program should have extensive experience in assessing cognitive function and in providing therapy aimed at improving cognitive function as well as language. They should have at least three months' experience working with a therapist experienced in the rehabilitation of TBI patients.

6. Nurses working in an inpatient TBI rehabilitation unit should have either a certificate in rehabilitation nursing or be supervised by a certified rehabilitation nurse for one year. Inpatient and outpatient nurses working with TBI patients should be trained to manage complications associated with TBI, including wound care management, spasticity management, and neurogenic bowel and bladder management, and to understand the general concepts of rehabilitation nursing.

All of the above-mentioned practitioners should receive annual training (e.g., continuing education) specifically related to TBI.

Training should be made available on an annual basis to non-TBI specialists (particularly to primary care providers: family practitioners, pediatricians, internists, physician's assistants, and nurse practitioners) who are practicing in the military or VA health care system. It is critical that these providers be able to recognize signs and symptoms of TBI, as well as late sequelae, and be able to manage the symptoms or refer the patient to the appropriate providers.

A recent report to the Surgeon General on TBI (Bradshaw et al., 2007) indicated that providers who are screening for or treating TBI have varying levels of experience with and knowledge about TBI. In addition, there are currently no policies related to education of providers in TBI treatment. This Surgeon General's task force recommended that a systemwide policy be developed to institute best practices for patients with TBI (Bradshaw et al., 2007). Once these best practices are developed, it will be easier to develop a training program for providers so that they can effectively recognize and treat TBI.

Appendix 7.D: Studies of Mental Health Services Utilization Among Servicemembers

Table 7.D.1
Studies of Mental Health Services Utilization Among Servicemembers

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Service	Other Utilization Information
Hoge C. W., C. A. Castro, S. C. Messer, D. McGurk, D. I. Cotting, and R. L. Koffman. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. <i>New England Journal of Medicine</i> , Vol. 351, No. 1, July 2004, pp. 13–22.					
Peer-reviewed	Convenience sample of 3 Army units and 1 Marine Corps unit (6,201)	Cross-Sectional	Depression PTSD	<p>Among those meeting screening criteria: Received Professional Help (% any professional/ % mental health professional)</p> <p>In past year: Pre-OIF Army: 28/15 Post-OEF Army: 23/13 Post-OIF Army: 40/27 Post-OIF Marine Corps: 29/21</p> <p>In past month: Pre-OIF Army: 18/11 Post-OEF Army: 17/13 Post-OIF Army: 32/21 Post-OIF Marine Corps: 21/14</p>	NA

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
Hoge C. W., J. L. Auchterlonie, and C. S. Milliken. Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. <i>Journal of the American Medical Association</i> , Vol. 295, No. 9, 2006, pp. 1023–1032.					
Peer-reviewed	Army and Marine Corps (303,905)	Prospective	Depression PTSD	<p>% with a mental health referral who utilized mental health treatment:</p> <ul style="list-style-type: none"> •OIF 56.3% •OEF 48.2% •Other deployments 51.4% <p>Among OIF veterans: 9,611 had a mental health referral indicated on the PDHA</p> <ul style="list-style-type: none"> •5,216 (54.3%) of these were seen in a mental health clinic during follow-up. •2,978 (57.1% of those seen in a mental health clinic) received a mental health condition diagnosis. •192 (2%) of veterans with PDHA referrals were seen in a primary care setting and received a mental health diagnosis. <p>Incidence rate of utilization of mental health services among OIF veterans: 346.2/1,000 persons/year (35%).</p> <ul style="list-style-type: none"> •118.9/1,000 persons/year received mental health services •84.1/1,000 persons/year were given an ICD-9 code (290-219) •34.8/1,000 persons/year were given a v code for a mental health problem •227.3/1,000 persons/year visited a mental health clinic but did not receive a mental health condition diagnosis (general health exam or ill-defined condition code) 	<p>Significant increase in mental health service utilization (number of visits/1,000 individuals/year) over time:</p> <p>145.3/1,000/year in 2000 175.3/1,000/year in 2001 199.8/1,000/year in 2002 218.8/1,000/year in 2003 222.3/1,000/year in 2004</p> <p>The total number of mental health–related visits also increased annually:</p> <p>687.1 in 2000 783.3 in 2001 858.4 in 2002 853.3 in 2003 887.5 in 2004</p>

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
Kolkow, T. T., J. L. Spira, J. S. Morse, and T. A. Grieger. Post-traumatic stress disorder and depression in health care providers returning from deployment to Iraq and Afghanistan. <i>Military Medicine</i> , Vol. 172, No. 5, May 2007, pp. 451–455.					
Peer-reviewed	US Military Health Care Providers—Naval (previously deployed to Iraq or Afghanistan) (102)	Cross-Sectional	Depression PTSD	Mental Health Visits 10%—before enlistment 14%—1 year before deployment 16%—during deployment 32%—since returning from deployment Ongoing treatment 5%—before enlistment 3%—1 year before deployment 0%—during deployment 13%—since returning from deployment	NA
U.S. Department of the Army, Office of the Surgeon General. <i>Operation Iraqi Freedom (OIF-II) Mental Health Advisory Team (MHAT-I) Report</i> , Washington, D.C.: U.S. Army Surgeon General, D104.2:M 52/2, December 16, 2003.					
Government Report	Army (OIF 1) (756)		Depression PTSD	During deployment: 27% of those meeting screening criteria for mental health condition reported receiving help 32% of those interested in getting help actually received some form of help	NA
U.S. Department of the Army, Office of the Surgeon General. <i>Operation Iraqi Freedom (OIF-II) Mental Health Advisory Team (MHAT-II) Report</i> . Washington, D.C.: U.S. Army Surgeon General, D104.2:M 52/2, January 30, 2005.					
Government Report	Army (OIF II) (2,064)		Depression PTSD	During deployment: 40% of those meeting screening criteria for mental health condition reported receiving help	NA
U.S. Department of the Army, Office of the Surgeon, Multinational Force–Iraq and Office of the Surgeon General. <i>Mental Health Advisory Team (MHAT-III) Operation Iraqi Freedom 04–06 Report</i> . Washington, D.C., May 29, 2006a.					
Government Report	Army (OIF 04–06) (1,124)		Depression PTSD	During deployment: 30% reported receiving care	NA

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
U.S. Department of the Army, Office of the Surgeon, Multinational Force–Iraq and Office of the Surgeon General, U.S. Army Medical Command. <i>Mental Health Advisory Team (MHAT-IV) Operation Iraqi Freedom 05-07 Report</i> , Washington, D.C., November 17, 2006b.					
Government Report	Army, Marine Corps (OIF 05–07) (1,767)		Depression PTSD	During deployment: Among those meeting screening criteria for a mental health problem: 42% of soldiers sought mental health care 38% of marines sought mental health care	NA
Seal, K. H., D. Bertenthal, C. R. Miner, S. Sen, and C. Marmar. Bringing the war back home: Mental health disorders among 103,788 US veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. <i>Archives of Internal Medicine</i> . Vol. 167, No. 5, 2007, pp. 476–482.					
Peer-reviewed	OEF/OIF veterans (103,788)	Retro-spective	PTSD	25% had an outpatient mental health visit 5% were seen in mental health clinics but did not receive a diagnosis 43% of those with an inpatient visit had a primary diagnosis of a mental disorder	Median time from first VA visit to mental health diagnosis was 13 days (interquartile range, 0–118 days)
Department of Defense Task Force on Mental Health. <i>An Achievable Vision: Report of the Department of Defense Task Force on Mental Health</i> . Falls Church, Va.: Defense Health Board, 2007.					
Government Report	NA			Mental health task force visits to providers revealed that patients followed up on referrals to mental health providers 90–100% of the time when that provider was located in a primary care setting. This rate dropped to 20–25% when the referral was made to a separate mental health clinic. Self-reported rates of substance use and treatment-seeking: According to anonymous Defense Survey of Health-Related Behaviors (Department of Defense, 2005), 23% of respondents acknowledged a significant alcohol problem; while Bray et al. (2005) found that only 15% actually seek treatment for a mental health issue.	NA

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
Erbes C., J. Westermeyer, B. Engdahl, and E. Johnsen. Post-traumatic stress disorder and service utilization in a sample of service members from Iraq and Afghanistan. <i>Military Medicine</i> , Vol. 172, No. 4, 2007, pp. 359–363.					
Peer-reviewed	Convenience sample of OEF/OIF vets enrolling for Minneapolis VA Medical Center care during the deactivation or discharge process (still awaiting completion of surveys; this is a preliminary analysis) (120)	Cross-sectional	Depression, PTSD, Hazardous Alcohol Use	<p>In the sample as a whole, some form of mental health care since returning home was reported by 62%. This included:</p> <ul style="list-style-type: none"> Medication (11% of sample) Individual therapy (13%) Group therapy (12%) Marital or family therapy (10%) Chemical-dependency treatment (2%) Briefings/debriefings (51%, likely an underestimate, because follow-up contacts with many returnees suggest that they did not realize that certain outprocessing sessions they underwent upon return [which in fact were debriefings] would be described by that label) <p>Among those meeting screening criteria for PTSD, 56% reported receiving individual therapy, group therapy, and/or psychiatric medication since their return.</p> <p>Service utilization rates for risky drinkers were much lower, with only 18% reporting receipt of any mental health services and only 3% reporting receiving chemical-dependency treatment.</p> <p>Many reported receiving more than one type of service.</p>	<p>A positive PTSD status was significantly associated with use of psychiatric medications and individual therapy, and there was a trend ($p < 0.10$) for higher group therapy participation.</p> <p>Hazardous drinking was not associated with greater mental health service use, including chemical-dependency treatment. The higher service utilization rates may be due to the sampling strategies, but could also reflect the longer time that these returnees have been home.</p> <p>The logistic regression analysis indicated that it is the general distress and negative affect expressed through depressive symptoms, rather than PTSD per se, that independently led to seeking services. This suggests that those suffering from PTSD symptoms without the negative affect and accompanying symptoms of depression may be less likely to seek services.</p>

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
Milliken C. S., J. L. Auchterlonie, and C. W. Hoge. Longitudinal assessment of mental health problems among Active and Reserve Component soldiers returning from the Iraq war. <i>Journal of the American Medical Association</i> , Vol. 298, No. 18, 2007, pp. 2141–2148.					
Peer-reviewed	Active Duty and Army National Guard and Reserve Soldiers returning from OIF (88,235)	Prospective	Depression PTSD	<p>Of those with referral for a mental health problem on the PDHA: 41.8% accessed mental health care services.</p> <p>Of those with referral for a mental health problem on the PDHRA: 61.0% accessed mental health care services.</p> <p>Of those without a referral for a mental health problem on the PDHA: 14.6% accessed mental health care services.</p> <p>Of those without referral for a mental health problem on the PDHRA: 17.8% accessed mental health care services.</p> <p>Of those with a referral for substance abuse on the PDHRA: 21.6% accessed mental health care services.</p> <p>Of those without a referral for substance abuse on the PDHRA: 2.9% accessed mental health care services.</p>	For Active Component soldiers with high PTSD symptoms reported on the PDHA, there was an inverse relationship between receiving mental health services and improvement in symptoms by the time of the PDHRA.
Rosenheck, R. A., and A. F. Fontana. Recent trends in VA treatment of post-traumatic stress disorder and other mental disorders. <i>Health Affairs</i> , Vol. 26, No. 6, 2007, pp. 1720–1727.					
Peer-reviewed	All veterans who received services for any mental disorder from inpatient or outpatient specialty mental health care programs in FY 1997, 1999, 2001, 2003, 2005	Retro-spective	PTSD	<p>Number of patients born after 1972 treated for PTSD in a VA specialty mental health care clinic:</p> <p>1997: 430 1999: 636 2001: 967 2003: 1,578 2005: 8,904</p>	NA

Table 7.D.1—Continued

Type of Report	Sample (n)	Design	Disorders Studied	Utilization of Services	Other Utilization Info
Okie, S. Traumatic brain injury in the war zone. <i>New England Journal of Medicine</i> , Vol. 352, No. 20, 2005, pp. 2043–2047.					
Journalistic	NA	NA	TBI	More than 450 patients with TBI were treated between January 2003 and February 2005 at Walter Reed	NA

NOTES: NA = not available. V code = part of the DSM-IV coding system for mental health disorders; relational problems and problems related to abuse and neglect are included in this designation.

Appendix 7.E: State and Local Mental Health Resources

Many mental health professionals, organizations, and community members have made a significant effort to provide services to returning servicemembers and assist them with reintegration. Although the quality of these programs is still unknown (the programs have not been formally evaluated), we postulate that they may increase accessibility of mental health treatment in several ways. Those that offer services to veterans with less than honorable discharges, or to friends or unmarried partners of servicemembers, expand access to care to individuals who may not be eligible for military or VA mental health services. Programs offering free counseling expand access to those who would be unable to afford it otherwise. Those programs that are offered in a confidential setting away from the military installation may be appealing to military servicemembers concerned with the stigma of seeking mental health services and those who worry that receiving mental health treatment may adversely affect their military careers. To help provide models for improving access that also deliver care that is most likely to be beneficial, we must emphasize that evaluations of the quality of such programs will be extremely important. This appendix summarizes some of the mental health programs that have been developed by individuals and organizations on the state or local level. This list is illustrative and not meant to be comprehensive.

Pro Bono Counseling and Psychoeducation

In response to the perceived need for psychotherapy and psychoeducational programs among returning OEF/OIF veterans and their families, many civilian mental health professionals and professional organizations developed programs to provide free counseling and psychotherapy to servicemembers and their families. Some examples follow.

The Coming Home Project. The Coming Home Project is made up of veterans, family members, psychotherapists (licensed psychologists, psychiatrists, social workers, and marriage and family therapists), and interfaith leaders in the greater San Francisco Bay area. The psychotherapists offer free counseling services to address the mental, emotional, spiritual, and relationship problems that servicemembers face upon return from deployment to Afghanistan or Iraq. The Coming Home Project emphasizes the confidentiality of its services. There is no limit on the frequency or duration of sessions. Regardless of reason for discharge or relationship to the veteran, veterans and family members are eligible for services through the Coming Home Project. Servicemembers and veterans outside of the San Francisco Bay area may contact the Coming Home Project for information or referrals and are also invited and encouraged to share their experiences in “therapeutic, but not psychotherapy” workshops and retreats. Travel and lodging scholarships are available for these free services. Additionally, the Coming Home Project offers training to health care providers and family members who provide care to returning servicemembers.

Give an Hour. Give an Hour is a national network of licensed mental health professionals who are willing to volunteer one hour of their time to provide free counseling to servicemembers and families. These providers are recruited through professional mental health organizations, professional publications, conferences and workshops, personal contacts, and Web sites. Counseling is offered away from the military installation in a confidential setting. To advertise and promote its services, Give an Hour plans to coordinate with the Department of Defense, the Veterans Administration, the National Military Family Association, and religious communities. It also plans to link with other Web-based groups that provide support services to the military. It hopes to collaborate with the Department of Defense, developing relationships and trust with officers so that they are willing to refer those in need of mental health services to Give an Hour counselors. Give an Hour volunteers from the community will check provider licenses, conduct community outreach, and coordinate volunteer opportunities for those servicemembers and families interested in giving an hour back to the community. In addition to identifying sources of free counseling services, the Give an Hour Web site provides informational materials to servicemembers and families, as well as to community members and care providers.

ONE Freedom. ONE Freedom is a Colorado-based nonprofit organization that offers tailored education and training on the neurophysiology of stress, its effect on daily life and relationships, and coping strategies to returning military servicemembers, their families, community leaders, family readiness groups (military-organized and command-supported groups that serve to help families), Reserve and Guard drill leaders, veterans' service organizations, and care providers. The program emphasizes the normalness of stress reactions and identifies resiliency and strength after service as tools for stress management. ONE Freedom utilizes both military and civilian instructors and provides information through several venues, including hour-long seminars and weekend retreats. On its Web site, ONE Freedom indicates that each skill taught has been validated by scientific research in university or hospital settings.

Operation Comfort. The mission of Operation Comfort is to create a nationwide network of licensed mental health care providers who are willing to offer free mental health services to family members of those soldiers deployed to Afghanistan or Iraq. Originating in California, the network has expanded to include other states. Family members interested in receiving services through Operation Comfort can visit its Web site, click on their state, and see a list of providers by city. Providers are not listed for every state, but there is a forum for providers interested in joining the program to sign up.

Returning Veterans Resources Project NW. The Returning Veterans Resources Project NW is an Oregon-based nonprofit organization comprising politically unaffiliated, independently licensed mental health professionals offering free and confidential counseling to veterans and their families. The program focuses on problems associated with reintegration, including employment concerns, anger, depression, relationship

problems, and other stressors. In addition to providing pro bono counseling services, the organization also plans to educate the community and raise awareness about the problems that returning veterans and their families face, as well as providing training for therapists and other caregivers working with returning veterans.

The Soldiers Project. The Trauma Center of the Los Angeles Institute and Society for Psychoanalytic Studies has established the Soldiers Project in the Southern California region. The Soldiers Project consists of a group of licensed psychiatrists, psychologists, social workers, and marriage and family therapists voluntarily providing free counseling to those servicemembers serving in Afghanistan or Iraq, family members of servicemembers, and family members of servicemembers who died in Afghanistan or Iraq. The Soldiers Project provides services for problems relating to the deployment, regardless of whether they occur before, during, or after the deployment. It discloses that the volunteer providers may not be able to give the necessary level of care but are willing to assist individuals in identifying more appropriate resources. If the therapist and individual receiving therapy decide to add medication to the treatment plan, The Soldiers Project will coordinate medication management with the VA health care system. The services offered through The Soldiers Project are confidential unless the servicemember or family member gives consent to pass information to another provider.

Strategic Outreach to Families of All Reservists (SOFAR). Initiated by the Psychoanalytic Couple and Family Institute of New England and other psychoanalytic groups in the New England region, Strategic Outreach to Families of All Reservists (SOFAR) coordinates free psychotherapy and psychoeducational sessions for families of Reserve and Guard servicemembers, to assist them in learning to cope with the stressors associated with periods of mobilization, activation, deployment, and reunion/reintegration. When a family member requests assistance through SOFAR, a clinician conducts an assessment and formulates a treatment plan. If SOFAR does not have adequate resources to provide necessary services to a family, he or she will assist them with locating the appropriate services within the community. The New England branch of SOFAR serves as a pilot project; after further development and modification of the program, SOFAR plans to replicate itself nationally through 27 local chapters of the Division of Psychoanalysis of the American Psychological Association and the 31 institutes of the American Psychoanalytic Association.

Support Our Family in Arms (SOFA). Psychotherapists affiliated with the Colorado Psychological Association have established Support Our Family in Arms (SOFA), a program that provides pro bono individual, group, couples, family, and child therapies; support group leadership; psychological assessments and evaluations; psychoeducational presentations and workshops; and other mental health services to returning Colorado National Guard and Reserve servicemembers and their families. Therapists not affiliated with the Colorado Psychological Association are also welcome to volunteer their time with SOFA. SOFA receives referrals from the Family Readiness and

Support Group at Buckley Air Force Base and other organizations, including Military OneSource, the National Vet Center Program, the National Gulf War Resource Center, Operation Just One, the National Military Family Association, Give an Hour, and the Strategic Outreach to Families of All Reservists. SOFA provides services in conjunction with, but not in place of, mental health services offered through the Department of Defense or the U.S. Department of Veterans Affairs. Military servicemembers are encouraged to determine what mental health services are already available from DoD and the VA when they seek assistance from SOFA.

Swords to Plowshares. The Swords to Plowshares program in San Francisco was developed in 1974 for Vietnam veterans who had other than honorable discharges, were struggling to reintegrate, and were encountering the criminal justice system. The program initially provided assistance with finding employment and advocated access to government benefits for these veterans. The advocacy program also raised awareness of post-traumatic stress disorder and exposure to Agent Orange in Vietnam veterans. The program's mission has evolved. It now offers services to those who have deployed to Afghanistan or Iraq. The drop-in counseling center offers services for drug and alcohol abuse and post-traumatic stress disorder, as well as referrals and case-management services.

State-Based Programs

Several states have developed programs to aid returning servicemembers with their mental health care needs. We describe the programs in Illinois, Ohio, Rhode Island, Vermont, and Washington.

Illinois. Illinois recently launched Veteran's Care, a program that offers access to affordable, comprehensive health care to all veterans across Illinois. It is the first state in the nation to create such a program. Veterans pay a monthly premium of \$40 or \$70 and receive medical coverage and limited dental and vision coverage.

Illinois is also the first state to establish a statewide traumatic brain injury program. The program has two parts: a TBI portion and a PTSD portion. The TBI portion will mandate screening for all Illinois National Guard servicemembers returning from deployment and offer free screening to all Illinois veterans, especially those returning from Operation Enduring Freedom and Operation Iraqi Freedom. Staffed by trained clinicians and nurses, with at least one psychiatrist on call at all times, the PTSD component of this program will offer 24-hour, toll-free psychological assistance. Due to the unique experiences of combat veterans, call-center staff will be trained in combat-related PTSD and other psychological issues facing veterans.

Ohio. The Ohio National Guard developed the OHIOCare program to assist returning National Guard servicemembers in connecting with the appropriate mental health resources according to the severity of their mental health issues. The program organized the state's mental health resources so that military servicemembers can more easily discern which services would be appropriate for their problems. The online Rein-

tegration Action Plan provides advice for the common problems that military service-members and their families face upon the military member's return. Military service-members and their families may call a toll-free number or access the OHIOCare's Web site to learn about the available services.

Rhode Island. To address the needs of veterans, military servicemembers, and their families during pre- and post-deployment, the Veterans Task Force of Rhode Island was developed by a group of individuals, organizations, and local, state, and federal agencies interested in sharing expertise and experiences. Six committees formed to independently research addictive disorders, peer support, community outreach, public awareness, family networks, and women veterans. From the committees' findings, the task force created a handbook entitled *The Rhode Island Blueprint*.® to serve as a resource guide for all military servicemembers, families, and civilian partners and agencies. The handbook contains information on common post-deployment challenges among returning veterans and lists available resources for each topic.

Vermont. In response to the lack of a comprehensive support network for returning National Guard troops, Vermont developed the Vermont Military, Family and Community Network. The network's mission is to develop and maintain a multigroup community network among community, government, and private sectors in order to raise awareness regarding the needs of servicemembers and to provide services to all returning servicemembers and their families. The network includes a state-level steering committee and local task forces. It also educated non-VA practitioners about the needs of servicemembers, as well as the need for integrated school counselors to assist the children of deployed and recently deployed soldiers. Several states across the country have started similar efforts.

Washington. The state of Washington has implemented a free post-traumatic stress disorder program, which creates community-based avenues to counseling services that are less formal in nature than many mental health services. Services provided through the program include individual, couples, family, and veteran group counseling. Some contractors offer group services to women veterans and spouses of veterans. This program is also linked with national programs for veterans, so that veterans with more serious need may be referred to specialized inpatient or outpatient treatment offered by the U.S. Department of Veterans Affairs Medical Centers or Vet Centers within Washington State.

In addition to working with veterans, this PTSD program provides free counseling and consulting resources to educate teachers and school counselors of the potential needs of school-aged children of parents who have been exposed to war. Parents' war and trauma experiences can affect their children in a variety of ways (see Chapter Five), and early identification and referral of children and families who are in need of supportive mental health services are a high priority of this program.

University-Based Counseling

Veterans returning to college after deploying to Afghanistan or Iraq may receive mental health counseling services through university counseling programs. California State University, San Bernardino, and the University of Texas advertise psychological services targeted specifically at the veteran student population. The University of Texas counseling center offers face-to-face as well as telephonic counseling for those who may not be comfortable going to the student services office for counseling.

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