Returning Home from Iraq and Afghanistan: Preliminary Assessment of Readjustment Needs of Veterans, Service Members, and Their Families

Committee on the Initial Assessment of Readjustment Needs of Military Personnel, Veterans, and Their Families; Board on the Health of Selected Populations; Institute of Medicine

ISBN: 0-309-14764-6, 192 pages, 8 1/2 x 11, (2010)

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Board on the Health of Select Populations

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

THE NATIONAL ACADEMIES PRESS 500 Fifth Street, N.W. Washington, DC 20001

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This study was supported by Contract No. HHSP23320042509XI between the National Academy of Sciences and Department of Defense. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the organizations or agencies that provided support for this project.

International Standard Book Number-13: 978-0-309-14763-7
International Standard Book Number-10: 0-309-14763-8

Additional copies of this report are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, http://www.nap.edu.

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IOM (Institute of Medicine). 2010. *Returning Home from Iraq and Afghanistan: Preliminary Assessment of Readjustment Needs of Veterans, Service Members, and Their Families.* Washington, DC: The National Academies Press.

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Willing is not enough; we must do."
—Goethe

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REVIEWERS

This report has been reviewed in draft form by persons chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of the report was overseen by **James S. House**, Institute for Social Research, University of Michigan. Appointed by the National Research Council and the Institute of Medicine, he was responsible for making certain that an independent examination of the report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of the report rests entirely with the author committee and the institution.

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PREFACE

The committee has been asked to determine the physical and mental health and other readjustment needs of members and former members of the Armed Forces who were deployed in Afghanistan in Operation Enduring Freedom (OEF) or in Iraq in Operation Iraqi Freedom (OIF) and of their families and communities. The project is a two-part study. In this first phase, the committee has focused on the readjustment issues that have been commonly reported during the last several years in the scientific literature, in government and non-governmental reports, and in the popular press to gain a broad understanding of those issues. As part of its preliminary assessment, the committee has heard from active duty service members, veterans, and family members as it made several visits around the country.

The work has been humbling and eye opening. It has been gratifying to learn first-hand of the fortitude, resourcefulness, and bravery of active duty military personnel, Reserve and National Guard members, and their families. They have been proud to serve their country and if they have been wounded, physically or mentally, they expect their government to return the favor. In most cases, the Department of Defense (DOD) and the Department of Veterans Affairs (VA) have responded to their needs admirably, but serious work remains.

Because the United States is still engaged in war in Afghanistan and Iraq, the situation regarding readjustment needs is an dynamic one. The committee applauds the efforts of the DOD and the VA in trying to respond to the situation, but in some instances the response has fallen short. In going around the country, the committee gathered qualitative data. It heard the same problems repeated on the West Coast and the East Coast, in the North and South, by health care providers, by active duty service men and women, and by veterans: there are not enough mental health providers to meet the demand, case managers and providers are overwhelmed, wait times are too long for appointments and between appointments for those in need of mental health and other services, confidentiality and stigma associated with seeking care for mental illness is a significant concern of active duty service members, job training and loss of jobs due to multiple deployments are issues, the ability to diagnose and treat traumatic brain injuries is a problem, and medical care for National Guard and reserve forces is an issue as they transition between active duty and civilian life.

In this preliminary report, the committee has looked broadly at the types of needs identified, including education, rehabilitation, employment training, mental health services, and other physical health services. In its second report, the committee will provide, in more detail, the extent of the services needed and will estimate costs on the basis of the services and the demographic data that it has received from the DOD and the VA.

The committee could not have completed its report without the help of the many people who provided data: those in the VA and the DOD, those in the veteran service organizations, researchers, and others working in the field. In addition, the people who helped us with our town hall and other meetings—on and off base—and all those who attended those meetings provided us with an understanding of the many complex issues.

I am deeply appreciative of the expert work of our committee members and their extraordinary commitment to the task. The committee extends its appreciation to the Institute of Medicine staff. In particular we would like to thank Naoko Ishibe, Renee Wlodarczyk, and Patrick Baur, who helped with myriad tasks, including literature searches, retrieving articles, providing information for background chapters, and contributing to the development of several chapters of the report. We appreciate Joe Goodman's attention to our meeting and travel needs and Carolyn Fulco for her guidance and oversight.

George W. Rutherford, MD, AM
Chair, Committee on the Initial Assessment of Readjustment Needs of Military Personnel, Veterans, and their Families

ACRONYMS

3CM	Three Component Model of Care
ACAP	Army Career and Alumni Program
ACWV	Advisory Committee on Women Veterans
AFHSC	Armed Forces Health Surveillance Center
AFSPP	Air Force Suicide Prevention Program
APA	American Psychological Association
APFT	Army Physical Fitness Test
ASDHA	Assistant Secretary of Defense for Health Affairs
AVF	All-Volunteer Force
BHIE	Bi-directional Health Information Exchange
BHOP	Air Force Behavioral Health Optimization Project
BIRLS	Beneficiary Identification and Record Locator System
BUMED	Navy Bureau of Medicine and Surgery
CBO	Congressional Budget Office
CBOC	Community Based Outpatient Clinic
CDC	US Centers for Disease Control and Prevention
CHAMPVA	Civilian Health and Medical Program of the Department of Veterans Affairs
CHCBP	Continued Health Care Benefit Program
COSC	Combat Operational Stress Control
CPRS	Computerized Patient Record System
CRS	Congressional Research Service
CSH	Combat Support Hospital
CSIS	Center for Strategic and International Studies
CWT	Compensated Work Therapy
DCHV	Domiciliary Care for Homeless Veterans
DCoE	Defense Centers of Excellence
DEERS	Defense Enrollment Eligibility Reporting System
DHCC	Defense Health Clinical Center
DMDC	Defense Manpower Data Center
DOD	Department of Defense
DOL	Department of Labor
DSM	Diagnostic and Statistical Manual of Mental Disorders

DTAP	Disabled Transition Assistance Program
DUSDMCFP	Deputy Under Secretary of Defense for Military Community and Family Policy
EPI	Army Reserve Employer Partner Initiative
ESGR	Employer Support of the Guard and Reserve
FAP	Family Advocacy Program
FAST	Family Advocacy Strengths-based Therapy
FRCP	Federal Recovery Coordination Program
FY	Fiscal Year
GAO	Government Accounting Office
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
HMO	Health Maintenance Organization
HUD	Department of Housing and Urban Development
HVVP	Hawaii Vietnam Veterans Project
IED	Improvised Explosive Device
IOM	Institute of Medicine
LOC	Loss of Consciousness
MEB	Medical Evaluation Board
MFLC	Military and Family Life Counselor
MGIB-AD	Montgomery GI Bill Active Duty
MGIB-SR	Montgomery GI Bill Selected Reserve
MHAT	Mental Health Advisory Team
MHM	Military Historical Measure
MHS	Military Health System
MOS	Military Occupational Specialty
MREIDL	Military Reservist Economic Impact Disaster Loan
MSIC	Military Severely Injured Center
MST	Military Sexual Trauma
MTF	Military Treatment Facility
NCA	National Cemetery Administration
NCSP	National Call to Service Program
NDAA	National Defense Authorization Act
NIH	National Institutes of Health
NIMH	National Institute of Mental Health
NVVRS	National Vietnam Veterans Readjustment Study
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OMB	Office of Management and Budget

OSCAR	Operation Stress Control and Readiness
PCM	Primary Care Manager
PDH-CPG	Post-Deployment Health Clinical Practice Guideline
PEB	Physical Evaluation Board
PNS	Polytrauma Network Site
PPO	Preferred Provider Organization
PRC	Polytrauma Rehabilitation Center
PTSD	Posttraumatic Stress Disorder
RESPECT-Mil	Re-Engineering Systems of Primary Care Treatment in the Military
SAC	School Age Care program
SBA	Small Business Administration
SCID	Structured Clinical Interview for DSM Disorders
SE	Supported Employment
SPC	Suicide Prevention Coordinator
TAP	Transition Assistance Program
TAPS	Tragedy Assistance Program for Survivors
TBI	Traumatic Brain Injury
TR	Transitional Residence
UCX	Unemployment Compensation for Ex-Servicemembers
USD(P&R)	Under Secretary of Defense for Personnel and Readiness
USERRA	Uniformed Services Employment and Reemployment Rights Act
VA	Department of Veterans Affairs
VAMC	VA Medical Center
VBA	Veterans Benefits Administration
VECS	Veterans Employment Coordination Service
VES	Vietnam Experience Study
VETS	Veterans' Employment and Training Service
VETSA	Vietnam Era Twin Study of Aging
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VIST	Visual Impairment Service Team
WWII	World War II
WWRC	Wounded Warrior Resource Center

SUMMARY

The United States began combat operations in Afghanistan on October 7, 2001, in response to the September 11, 2001, terrorist attacks. That war is officially referred to as Operation Enduring Freedom (OEF), and the war in Iraq, which began in March 2003, is referred to as Operation Iraqi Freedom (OIF). Since October 2001, about 1.9 million US troops have been deployed to Afghanistan and Iraq. OEF and OIF have many unique features with regard to the military force being sent to fight those wars. The all-volunteer military has experienced multiple redeployments to the war zone, great use of the reserve components of the military and National Guard, deployment of high numbers of women and of parents of young children, and a high number of military personnel who survive severe injuries that in previous wars would have resulted in death.

Many men and women return from the war zone successfully and adjust to their lives out of theater, but others have had difficulty in readjusting or transitioning to family life, to their jobs, and to living in their communities after deployment. Numerous reports and articles in the popular press have drawn attention to those readjustment issues and have suggested that onset or exacerbation of mental disorders—particularly posttraumatic stress disorder (PTSD), anxiety disorders, and depression—might hinder readjustment. In addition, traumatic brain injury (TBI), often called the signature wound of OEF and OIF, is associated with a host of long-term adverse health outcomes, such as unprovoked seizures, decline in neurocognitive function, dementia, and adverse social-function outcomes, including unemployment and diminished social relationships, depression, and aggressive behaviors.

BACKGROUND

In response to the growing needs of OEF and OIF active-duty service members, veterans, and families, Congress passed Section 1661 of the National Defense Authorization Act for FY 2008. That section required that the secretary of defense, in consultation with the secretary of veterans affairs, enter into an agreement with the National Academies for a study of the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed to OIF or OEF and their families as a result of such deployment. The study was assigned to the Institute of Medicine (IOM) and is to be conducted in two phases. This report is a response to the congressional legislation for phase 1 of the study.

STATEMENT OF TASK

The statement of task for this study evolved out of discussions among the Department of Defense (DOD), the Department of Veterans Affairs (VA), and IOM. Specifically, it was determined that in phase 1, the IOM committee would identify preliminary findings regarding the physical and mental health and other readjustment needs for members and former members of the armed forces who were deployed to OEF or OIF and their families as a result of such deployment.

The committee would also determine how it would approach phase 2 of the study, which is meant to be a comprehensive assessment of the physical, mental, social, and economic effects and to identify gaps in care for members and former members of the armed forces who were deployed to OIF or OEF, their families, and their communities.

COMMITTEE'S APPROACH TO ITS CHARGE

IOM appointed a committee of 16 experts to carry out this study. The committee members have expertise in sociology, psychiatry, rehabilitation, neurology, economics, epidemiology, survey research, and health policy and management. The Committee on Readjustment Needs of Military Personnel, Veterans, and Their Families decided, at its first meeting, that its approach to gathering information would include consideration of data in the peer-reviewed literature; gathering of data directly from DOD and VA; review of government articles, reports, and testimony presented before Congress; and review of recent IOM reports on PTSD, TBI, and physiologic, psychologic, and psychosocial effects of deployment-related stress. The committee would also seek input from the affected groups and communities.

The committee conducted extensive searches of the peer-reviewed literature in its attempts to understand readjustment needs, and it considered about 1,000 articles that were identified through those searches. Many of the articles, however, focused on outcomes primarily of service in the Vietnam War rather than OEF and OIF. There was a paucity of information in the literature about the current wars; thus, the articles reviewed, although instructive about the numerous outcomes and long-term effects of deployment and redeployment, were in effect a substitute for the information that the committee would like to have had. The committee also requested data from DOD and VA.

The committee examined the basic demographic data on the active-duty forces, the reserve components of the military, and the National Guard that DOD and VA provided, such as number of troops deployed and redeployed, dwell time, marital status, numbers of women deployed, types of injuries reported, and health-care use by OEF and OIF veterans. DOD data were provided by the Defense Manpower Center and the Armed Forces Health Surveillance Center. Committee members reviewed numerous reports that informed it about DOD and VA programs developed for those who have served in OEF and OIF and the costs of such programs. They reviewed reports from the Government Accountability Office, the Congressional Budget Office, and the Congressional Research Service; inspector general reports for VA and DOD; and congressional testimony relevant to the committee's task. And they reviewed several IOM reports on PTSD diagnosis, PTSD treatment, the effects of deployment-related stress, and long-term outcomes related to TBI.

Members of the committee understood that to carry out their task it would be important to talk to people who had first-hand knowledge of readjustment needs—active-duty personnel, veterans, family members, health-care providers, and community leaders. Therefore, in addition to its six meetings and literature reviews, the committee held several town hall meetings. The committee tried different venues and approaches for meeting with active-duty military personnel, veterans, and family members; some of the approaches were more successful than others.

Ultimately, the committee met with active-duty personnel, National Guard members, family members, veterans, and community leaders in cities, towns, and rural areas where there are large military bases and that were home to troops deployed to Iraq and Afghanistan. The committee held those meetings in Killeen, Texas (near Fort Hood); in Austin, Texas (at Camp Mabry); in Jacksonville and Fayetteville, North Carolina (near Camp Lejeune and Fort Bragg, respectively); and in Oceanside, California (near Camp Pendleton). Several committee members also met with the Marine and Family Services Division of Marine Corps Community Services at Camp Pendleton to gain a better understanding of the needs of marines and their family members and to become aware of the services offered. Those meetings were invaluable in providing the committee with an understanding of the challenges faced, not only by active-duty military with regard to accessing services but by providers who were trying to meet all the needs of service members and their families. Groups of committee members and staff went to Toledo, Ohio, to meet with National Guard members and representatives of the Ohio, Michigan, and Indiana Guard and to Watertown, New York, to meet with community leaders who serve those stationed at Fort Drum. The information-gathering sessions were open to the public. The committee also solicited comments from military-service and veteran-service organizations.

As a result of its approach to gathering information and its meetings and discussions, the committee decided to focus its findings on readjustment needs and gaps related to the conditions most frequently diagnosed in returning OEF and OIF active-duty personnel and veterans, such as PTSD and other mental health conditions, TBI, and social outcomes.

FINDINGS AND RECOMMENDATIONS

The committee is aware that it is addressing a dynamic set of issues in that the conflicts in Iraq and Afghanistan are going on now and issues and needs will continue to change. The committee also recognizes that VA, DOD, and other government agencies are actively responding to changing needs of active-duty service members, veterans, and their family members, and that many of the committee's recommendations consequently might already be in the process of being addressed. Overall, the committee has found

- Relevant data on previous conflicts that are useful in addressing issues in the OEF and OIF populations.
- A relative paucity of data on OEF and OIF populations that are adequate to support evidence-based policy on most issues of concern.
- Information on a multitude of programs that have been developed to address the needs of the OEF and OIF populations.
- A scarcity of systematic or independent evaluation of such programs.

As the committee notes in Chapter 3, every war is unique in important respects. Empirical evidence collected from multiple wars documents that exposure to combat, other war-

zone stressors, or even deployment itself can have immediate and long-term physical, psychologic, and other adverse consequences. Some of the consequences have been generally constant throughout the history of warfare, even though the context and nature of warfare have changed dramatically. However, throughout history, society and culture have played a powerful role in how the effects of war on soldiers have been viewed, in the perceived nature and causes of the effects, and in how soldiers were treated for them. Although the experiences of those deployed to Iraq or Afghanistan bear similarities to the experiences of those deployed in previous conflicts, there are a number of distinctive and important differences in who is serving, how they are deployed, and how the conflicts are being fought. The differences have important consequences for the types and severity of challenges and readjustment problems likely to be experienced by the men and women serving in OEF and OIF and for the types of support that they and their families need both in theater and on their return home. Most of the differences are notable in that our armed forces and our country as a whole have not had relevant experience with the key features of organization and warfare that make these conflicts most distinctive. Furthermore, the research that has been conducted shares a set of limitations with studies of the experiences in prior conflicts. Those limitations include

- Reliance on samples of convenience, which limits their external validity (generalizability).
- Reliance on brief screening instruments to identify key outcomes and to estimate prevalence, which limits internal validity.
- Use of cross-sectional designs, which limits the ability to support causal inference and to elucidate the course of disorders.
- Assessment of narrow sets of risk and protective factors, which results in under-specified models with a high risk of bias.
- Conduct of many studies by VA or DOD, rather than by independent third parties, which raises important questions about the accuracy of respondents' self-reports, particularly with regard to sensitive issues.

All those limitations are understandable given the fiscal and practical challenges involved in conducting long-term outcome studies (for example, longitudinal epidemiologic studies are expensive and difficult to implement). To be useful in the formulation of policy, however, studies need to be both scientifically sound and comprehensive. The committee is aware of the Millennium Cohort Study, several studies being conducted by RAND, and other studies that are in progress. Additional studies that address some of the methodologic challenges identified above—for instance, using probability sampling, diagnostic interviewing, and longitudinal designs—will be needed to move the field forward.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on readjustment needs of returning OEF and OIF veterans, their families, and their communities that explicitly addresses methodologic and substantive gaps in completed and ongoing research. For example, the support of large-scale, independent studies with longitudinal designs, probability sampling, comprehensive clinical assessment of key outcomes, and more fully specified models that include objective biologic measures should be considered.

In Chapter 4, the committee presents many of its preliminary findings and notes that research and program development are needed to substantiate the potential efficacy and cost

effectiveness of developing protocols for the long-term management of TBI and polytrauma. The array of potential health outcomes associated with TBI suggests that injured service members will have long-term psychosocial and medical needs from both persistent deficits and problems that develop in later life. Access to rehabilitation therapies—including psychologic, social, and vocational—is required initially with the onset of deficits and will persist over time as personal and environmental factors change leading to loss of functional abilities.

VA has put into place a comprehensive system of rehabilitation services for polytrauma, including TBI (see Chapter 5), that addresses acute and chronic needs that arise in the initial months and years after injury. However, protocols to manage the lifetime effects of TBI are not in place and have not been studied for either military or civilian populations. As in other chronic health conditions, long-term management for TBI may be effective in reducing mortality, morbidity, and associated costs.

The committee recommends that the Department of Veterans Affairs conduct research to determine the potential efficacy and cost effectiveness of developing protocols for the long-term management of service members who have polytrauma and traumatic brain injury. The approaches considered should include

- **Prospective clinical surveillance to allow early detection and intervention for health complications.**
- **Protocols for preventive interventions that target high-incidence or high-risk complications.**
- **Protocols for training in self-management aimed at improving health and well-being.**
- **Access to medical care to treat complications.**
- **Access to rehabilitation services to optimize functional abilities.**

Another issue of concern, discussed in Chapter 4, is the critical shortage of health-care professionals—especially those specializing in mental health—to meet the demands of those returning from theater in Iraq and Afghanistan and their family members. Psychologists, psychiatrists, social workers, and other mental health professionals who do serve the military and veteran communities have large caseloads, especially in some locations that result in underserving of patients, high rates of burnout, and turnover. The committee heard of those problems repeatedly in its town hall meetings both from mental health professionals and from those who were waiting for appointments for treatment. Many of the people who spoke at the committee's meetings, from Fort Hood to Camp Pendleton, emphasized that those who are in need of mental health treatment have to wait too long for initial appointments or between appointments.

The committee recommends that the Department of Defense and the Department of Veterans Affairs quantify the number and distribution of mental health professionals needed to provide treatment to the full population of returning service members, veterans, and their families who suffer from mental health

disorders, such as PTSD, major depression, and substance abuse, so that they can readjust to life outside of theater. The committee also recommends that the Department of Defense and the Department of Veterans Affairs continue to implement programs for the recruitment and retention of mental health professionals, particularly to serve those in hard-to-reach areas.

Stigma, real or imagined, is perceived by military personnel who are (or are considering) seeking care for mental health or substance-abuse problems. And active-duty military and veterans fear that visits to a mental health provider will jeopardize their careers because of the military's long-standing and understandable policy of reporting mental health and substance-abuse problems to the chain of command. Such a policy is a disincentive to seeking care, underestimates the extent of the problem or the disease burden, and may ultimately compromise readiness.

The committee recommends that the Department of Defense actively promote an environment to reduce stigma and encourage treatment for mental health and substance-use disorders in an effort to improve military readiness and ability to serve. The committee also recommends that the Department of Defense undertake a systematic review of its policies regarding mental health and substance-abuse treatment with regard to issues of confidentiality and the relation between treatment-seeking and military advancement.

As noted in Chapter 4, the demands of the current conflicts have made compliance with DOD's rotational policies (for example, length of deployments and length of time between deployments) difficult. The implications and potential consequences of shorter dwell time and more frequent deployments are of obvious importance for understanding the readjustment needs of service members and their families; policies that help to ease reintegration are paramount. Little research has been conducted to evaluate whether service members who undergo third-location decompression (that is, for service members to have time with their comrades and peers in a restful situation and prepare themselves for going back to their families and communities) have better outcomes than those who do not, but anecdotal reports from foreign troops have been favorable. For example, Canadian forces have returned home from Afghanistan via Guam or Cyprus by spending 5 days of structured time with their units, which allows some time for decompression; they are also required to work about three half-days at their home base, and this provides additional time to adjust to life back in Canada and to ease the transition back into family life.

The committee recommends that the Department of Defense formally assess whether a "third-location decompression" program would be beneficial for US combat troops. Third-location decompression has the potential to allow troops to have time to begin to readjust before returning home and to family responsibilities.

Primarily on the basis of studies of previous conflicts, Chapter 4 highlights many issues related to families, spouses, children, women, and racial and ethnic minority-group members. It also discusses preliminary findings related to social issues related to deployment, such as employment, education, income, debt, wages, and earnings, also on the basis of data on previous

wars. The committee found that active-duty service members, reservists, and veterans face hardships resulting from service in Iraq and Afghanistan that extend beyond physical and mental health problems. They also face numerous readjustment needs that affect their ability to adjust to life outside theater. Those needs, in turn, create hardships for their families.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on the social and economic effects of deployment and multiple deployments on families. For example, research should examine the effects of multiple deployments on domestic violence and maltreatment of children, as well as on financial well-being.

Women now constitute 14% of deployed forces in the US military, and, although technically they are barred from serving in combat, a growing and unprecedented number of female soldiers are deployed to combat areas where their lives are at risk. Although all service members are exposed to high levels of workplace stress, women in the military face some unique stressors, such as sexual harassment and trauma exposure that may affect their mental health and emotional well-being. Female veterans report a higher burden of medical illness, worse quality-of-life outcomes, and earlier psychologic morbidity than do men who are exposed to the same levels of trauma. Both the military and family life require commitment and loyalty, and servicewomen who have families may experience intense conflict between the demands of their military roles and their family roles. Some of the specific issues for women are military-related sexual harassment and assault and the resulting mental health problems, histories of premilitary trauma, specific health-care needs, pregnancy and the postpartum period, and the configuration of family roles (such as mother, spouse, and caregiver of aging parents).

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund studies to evaluate the effectiveness of mental health treatments currently being provided to women and to identify potential new treatments designed specifically to address women's unique circumstances and stressors, such as sexual harassment and assault, PTSD, and premilitary trauma.

Although the military has a tradition of being one of the most desegregated institutions in US society, there is evidence that minority-group members have greater health and mental health needs than their white counterparts. For example, some minority groups may be at greater risk for PTSD and other adverse outcomes than nonminority groups exposed to comparable traumatic events. In addition, minority groups are less likely than nonminority groups to use mental health services and quicker to drop out of treatment. Therefore, health-care needs and other needs of minorities might be different from those of whites and are not yet well understood. All those issues raise a number of research questions that should be addressed.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on culturally sensitive treatment approaches targeted toward minorities. Research is also needed on utilization patterns of currently available services by minority populations and the efficacy of such services to improve health outcomes.

The burden borne by wounded warriors and their families, and thus the public responsibility to treat or compensate them, will persist for many years. Historically, the peak demand for compensation has lagged behind the end of hostilities by 30 years or more, so the maximum stress on support systems for OEF and OIF veterans and their families might not be felt until 2040 or later. To produce timely, accurate, and transparent forecasts of veterans' needs and demands on the system, it will be important to put into place mechanisms for anticipating the needs of veterans and their families so that the needs can begin to be addressed. Although long-term costs are less predictable and potentially are the subject of much controversy, because the costs are certain to be substantial and will be acutely felt by veterans and their families, high-quality cost forecasts are needed so that resources can be allocated better.

The committee recommends that Congress appropriate funds and direct the Department of Veterans Affairs to expand the role of its actuary to produce annual long-term forecasts of costs associated with all health and disability benefits that are consistent with the practices of Social Security and Medicare.

As the committee notes in Chapter 5, numerous programs exist or have been developed to meet the readjustment needs of OEF and OIF service members, veterans, and their families. There appears to be little coordination between programs and a lack of communication about the programs to those who need the services (there are notable exceptions, such as Military OneSource), especially those living in remote areas. Furthermore, the efficacy of the programs is unknown inasmuch as most programs have not been evaluated and there is no clear chain of accountability. No specific organization is providing stewardship of the available programs to assist those in need.

The committee recommends that the Department of Defense and the Department of Veterans Affairs oversee coordination and communication of the multitude of programs that have been created in response to the needs of Operation Enduring Freedom and Operation Iraqi Freedom service members, veterans, and their family members in an effort to maximize their reach and effectiveness. The committee also recommends that there be independent evaluation of these programs with standardized evaluation designs and assessment of outcomes.

PHASE 2

As previously noted, the legislation (see Appendix A) that mandated this study directed that it be conducted in two phases. The specific aims of the second phase are to carry out a comprehensive assessment of the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed to OEF or OIF and their families as a result of such deployment and to assess the psychologic, social, and economic effects of such deployment on members, former members, and their families, including

- Effects of multiple deployments to OEF and OIF on members, former members, and their families.
- The scope of the neurologic, psychiatric, and psychologic effects of TBI on members and former members of the armed forces and their family members, including the efficacy of

current approaches to treatment for TBI in the United States and the efficacy of approaches to screening and treatment for TBI in DOD and VA.

- Effects of undiagnosed injuries, such as PTSD and TBI, an estimate of the long-term costs associated with such injuries, and the efficacy of approaches to screening and treatment for PTSD and other mental health conditions in DOD and VA.
- Sex-specific and ethnic-group–specific needs and concerns of members of the armed forces and veterans.
- Particular needs and concerns of children of members of the armed forces, taking into account different age groups, effects on development and education, and the mental and emotional well-being of children.
- An assessment of the particular educational and vocational needs of members and former members and their families and the efficacy of existing educational and vocational programs to address such needs.
- Effects of deployments associated with OEF and OIF on communities that have high populations of military families, including military housing communities and townships that are home to deployed members of the National Guard and reserves, and an assessment of the efficacy of programs that address community outreach and education concerning military deployments of community residents.
- Effects of increases in numbers of older and married members of the armed forces on readjustment requirements.
- The development, based on such assessments, of recommendations for programs, treatments, or policy remedies targeted at preventing, minimizing, or addressing the identified effects, gaps, and needs.
- The development, based on such assessments, of recommendations for additional research on identified needs.

The committee has given considerable thought to a framework to advance its task. The remainder of this chapter will describe the committee's approach to the formidable task given to it by Congress.

Inasmuch as the situations in Afghanistan and Iraq continue to evolve—as do the needs of OEF and OIF active-duty service members, veterans, family members, and communities—the committee suggests a flexible approach that can respond to the dynamic circumstances. The committee will expand its ranks by adding experts to assist in data collection and analysis, and it expects to have the input of its new members in the final approach for phase 2 before making its plan final. Phase 2 will probably involve collecting both qualitative and quantitative data. Possible approaches to address the statement of task that will be considered by the committee are described below.

1. Review of funded research and gap analysis

In phase 2, the committee expects to conduct a comprehensive assessment of newly completed and current research on OEF and OIF populations to determine what additional research is needed to identify and assess the magnitude of readjustment needs. The committee will perform a gap analysis based on the concerns outlined in the legislation (see Appendix A) and the funded research; the committee members will recommend topics for additional studies and provide the details for the approach to the research. The committee will require the

cooperation of DOD and VA to compile a comprehensive list of newly completed and currently funded research.

2. Systematic reviews of interventions

The committee will conduct systematic literature reviews on interventions to address readjustment problems for social services and physical and mental health services and will recommend evidence-based interventions. There is a need to define optimal standards of care to restore and maintain health for OEF and OIF active-duty service members and veterans. The committee will review the literature on treatment modalities for TBI and PTSD and make recommendations for the best treatment approaches and for culturally sensitive treatments.

3. Identify access-to-care issues

The committee intends to examine issues related to access to care, specifically the extent to which DOD and VA treatment facilities are in areas where the need is greatest. The committee will gather data on demographics and on the number and types of services and programs that are available on the installations and in the surrounding communities (such as local hospitals, social services, and VA medical centers) to map actual resource allocation. The committee will also gather data on the numbers and types of health and mental health diagnoses being made by DOD and VA and examine the numbers of health and mental health professionals in an effort to determine workforce needs. The committee will need the cooperation of DOD and VA as it attempts to gather information to complete this task. DOD has already been helpful in providing detailed demographic information to the committee.

4. Generate opportunities for research to fill identified knowledge gaps

Informed by knowledge gaps identified in paragraphs 1 and 2 above, the committee plans to develop a request for proposals for a large-scale independent study or a suite of studies that would aim to improve understanding of the scope of the consequences of OEF and OIF and that would offer solutions to remediate those needs. Such a study should not duplicate current efforts but rather should be complementary and reflect the state of the science. In general, we anticipate that the study should have longitudinal designs inasmuch as not all consequences of deployment are immediately obvious (or even immediately measurable). It should use probability sampling so that all who served have a nonzero probability of being in the sample (that is, sampling cannot be complete until the war ends, or the sample would be drawn from all those who had served as of a specified date). That will be critical for external validity (generalizability) and to capture the varying nature of exposure by time and place of service. In addition, incorporation of clinical assessment, moving beyond screening instruments, will be required. We expect that some research started in phase 2 might not be completed by the time phase 2 concludes. However, our intention is that this work will lay a comprehensive base for future implementation science that deals directly with the readjustment needs of OEF and OIF active-duty service members, veterans, their families, and their communities. We also note that the committee will lay the foundation for qualitative research if a need for it becomes apparent in the reviews being discussed in paragraphs 1 and 2 above.

5. Identify policy remedies

Implicit in much of what the committee has found and has written is that dealing with the population-level consequences of OEF and OIF will require policy changes. The scope of potential policy remedies will be targeted at preventing, minimizing, or addressing the impacts, gaps, and needs identified during the committee's work. It is anticipated that this work will generate specific recommendations that may require statutory changes to implement.

1

INTRODUCTION

The United States began combat operations in Afghanistan on October 7, 2001, in response to the September 11, 2001, terrorist attacks. That war is officially referred to as Operation Enduring Freedom (OEF), and the war in Iraq, which began in March 2003, is referred to as Operation Iraqi Freedom (OIF). Since October 2001, about 1.9 million US troops have been deployed to Afghanistan and Iraq. OEF and OIF have many unique features with regard to the military force being sent to fight. The all-volunteer military has experienced multiple redeployments to the war zone, increased use of the reserve components of the military and National Guard, increased numbers of deployed women and parents of young children, and increases in the number of military personnel surviving severe injuries that in previous wars would have resulted in death (see Chapter 2 for a detailed discussion of the demographics of those deployed to OEF and OIF).

Although many men and women who return from a war zone successfully adjust to their lives out of theater, others have difficulty in readjusting or transitioning to family life, to their jobs, and to living in their communities after deployment. Some of the challenges are transitioning in and out of the civilian workforce, readjusting to partners who have assumed new roles during the separation period, readjusting to children who have matured and may resent additional oversight, re-establishing bonds with spouses and children, and managing the long-term health problems that are prevalent after deployment, such as posttraumatic stress disorder (PTSD), depression, and the sequelae of traumatic brain injury (TBI) (American Psychological Association Presidential Task Force on Military Deployment Services for Youth, Families, and Servicemembers, 2007; Slone et al., 2009).

Numerous reports and articles in the popular press have drawn attention to those readjustment issues and have suggested that onset or exacerbation of mental disorders—particularly PTSD, anxiety disorders, and depression—might hinder readjustment. In addition, TBI, often called the signature wound of OEF and OIF, is associated with a host of long-term adverse health outcomes, including unprovoked seizures, decline in neurocognitive function, dementia, and adverse social function outcomes, such as unemployment and diminished social relationships, depression, and aggressive behaviors (IOM, 2009).

BACKGROUND

In response to the growing needs of OEF and OIF active-duty service members, veterans, and families, Congress passed Section 1661 of the National Defense Authorization Act for FY 2008. That section required the secretary of defense, in consultation with the secretary of veterans affairs, to enter into an agreement with the National Academies for a study of the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed in OIF or OEF and their families as a result of such deployment. The study was assigned to the Institute of Medicine (IOM).

The study consists of two phases. Phase 1 is a preliminary assessment to identify findings on the physical and mental health and other readjustment needs of and on gaps in care for the members, former members, and families described in the legislation and to provide a roadmap for the second phase of the study. Phase 2 is to determine, in detail, the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed in OEF or OIF and the needs of their families and affected communities as a result of deployment (see Appendix A for the complete legislation). This report fulfills the requirement for phase 1 in the legislation.

STATEMENT OF TASK

The statement of task for this study evolved out of discussions between the Department of Defense (DOD), the Department of Veterans Affairs (VA), and IOM. Specifically, it was determined that in phase 1 the IOM committee would identify preliminary findings regarding the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed in OEF or OIF and their families.

The committee would also determine the goals of the second phase of the study, which is meant to provide a comprehensive assessment of the physical, mental, social, and economic effects of deployment and to identify gaps in care for members and former members of the armed forces who were deployed in OIF or OEF, their families, and affected communities.

COMMITTEE'S APPROACH TO ITS CHARGE

IOM appointed a committee of 16 experts to carry out the study. The committee members have expertise in sociology, psychiatry, rehabilitation, neurology, economics, epidemiology, survey research, and health policy and management. At its first meeting, the committee decided that its approach to gathering information would include considering data from the peer-reviewed literature; gathering data directly from DOD and VA; reviewing government articles, reports, and testimony presented to Congress; reviewing recent IOM reports on PTSD, TBI, and physiologic, psychologic, and psychosocial effects of deployment-related stress; and seeking input from the affected groups and communities. Those data gathering efforts were conducted for the committee to get a broad overview of possible readjustment needs as they relate to the long-lasting impact of deployments to OEF and OIF.

The committee conducted extensive searches of the peer-reviewed literature in its attempts to understand readjustment needs and considered about 1,000 articles that resulted from

the searches. Many of the articles, however, focused on outcomes primarily of service in the Vietnam War rather than OEF and OIF. There was a paucity of published information about the current wars, so the articles reviewed, although instructive about the numerous outcomes and long-term effects of deployment and redeployment, were a substitute for the information that the committee would like to have had.

The committee also requested data from DOD and VA. Once the appropriate people in DOD were identified, the data requests were processed quickly. However, the data provided by VA have been incomplete; the committee's deliberations in phase 2 will be facilitated by access to more complete information from the VA.

The committee examined the basic demographic data that DOD and VA provided on the active-duty forces, the reserve components of the military, and the National Guard, such as the number of troops deployed and redeployed, the length of dwell time, marital status, the numbers of women deployed, the types of injuries reported, and health-care use by OEF and OIF veterans. DOD data were provided by the Defense Manpower Data Center and the Armed Forces Health Surveillance Center. Committee members also reviewed numerous reports that contained information on DOD and VA programs developed for those who have served in OEF and OIF and the costs of such programs; reports from the Government Accountability Office, the Congressional Budget Office, the inspectors general of VA and DOD, and the Congressional Research Service and congressional testimony relevant to its task; and several IOM reports on PTSD diagnosis (IOM, 2006), PTSD treatment (IOM, 2008b), the effects of deployment-related stress (IOM, 2008a), and the long-term outcomes related to TBI (IOM, 2009).

Members of the committee understood that to carry out its task it would be important to talk to people who had firsthand knowledge of readjustment needs—active-duty personnel, veterans, family members, health-care providers, and community leaders. Thus, in addition to its literature reviews and six committee meetings, the committee held five town hall meetings. The committee used several venues and approaches for meeting with active-duty military personnel, veterans, and family members; some of the approaches were more successful than others.

Ultimately, the committee met with active-duty personnel, National Guard members, family members, veterans, and community leaders in cities, towns, and rural areas that have large military bases and troops who were deployed to Iraq and Afghanistan. In this first phase, the committee conducted the meetings in an effort to gain qualitative data; in phase 2, it expects to collect quantitative data from such meetings. The committee held meetings in Killeen, Texas (near Fort Hood); in Austin, Texas (at Camp Mabry); in Jacksonville and Fayetteville, North Carolina (near Camp Lejeune and Fort Bragg, respectively); and in Oceanside, California (near Camp Pendleton). Several committee members met with the Marine and Family Services Division at Camp Pendleton to gain a better understanding of the needs of marines and their family members and to become aware of the services offered. Those meetings were invaluable in providing the committee with an understanding of the challenges faced not only by active-duty military with regard to accessing services but by providers in trying to meet all the needs of service members and their families. Groups of committee members and staff went to Toledo, Ohio, to meet with National Guard members and representatives from the Ohio, Michigan, and Indiana Guard and to Watertown, New York, to meet with community leaders who serve those stationed at Fort Drum. The information-gathering sessions were open to the public. The committee also solicited comments from military and veteran service organizations. The main issues discussed at those meetings are highlighted in Appendix B.

As a result of the committee's extensive discussions, the committee decided to focus its findings on readjustment needs and gaps related to the conditions most frequently diagnosed in returning OEF and OIF active-duty personnel and veterans, such as PTSD and other mental health conditions, TBI, and social outcomes.

ORGANIZATION OF THE REPORT

Chapter 2 presents the demographics of the OEF and OIF populations and provides an overview of the extent of the problem with regard to adverse outcomes. Inasmuch as there was incomplete information on the needs of military personnel returning from OEF and OIF and their family members, the committee believed it prudent to examine the needs of veterans who returned from other wars, particularly the Vietnam War, which are described in Chapter 3. Chapter 4 details the findings regarding adverse physical, mental, and social outcomes, the effects of deployment, issues specific to women and minorities, and planning for the long-term needs. Chapter 5 provides a summary of the current federal response to the needs of OEF and OIF active-duty military, veterans, and family members. Chapter 6 contains the committee's findings and recommendations and discusses how it plans to accomplish its phase 2 tasks as described by the legislation. The report has two appendixes: Appendix A is a copy of the legislation directing the committee's work, and Appendix B summarizes some of the issues raised at its meetings around the country.

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2

OPERATION ENDURING FREEDOM AND OPERATION IRAQI FREEDOM: DEMOGRAPHICS AND IMPACT

Since the beginning of the wars in Afghanistan and Iraq in 2001, over 1.9 million US military personnel have been deployed in 3 million tours of duty lasting more than 30 days as part of Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) (Table 2.1). Those wars are fundamentally different from the first Gulf War and other previous wars (see Chapter 3) in their heavy dependence on the National Guard and reserves and in the pace of deployments, the duration of deployments, the number of redeployments, the short dwell time between deployments, the type of warfare, the types of injuries sustained, and the effects on the service members, their families, and their communities. Moreover, OEF and OIF together make up the longest sustained US military operation since the Vietnam War, and they are the first extended conflicts to depend on an all-volunteer military. This background chapter is divided into three sections. The first provides information about the demographics of the all-volunteer military. The second highlights some of the issues faced by the troops who have served in OEF or OIF and their families that are being reported in the popular press, government reports, and the peer-reviewed scientific literature. On the basis of available data, it is not known whether those issues are causally related to deployment, but the challenges confronting the troops and their families appear to be real, and Chapter 4 describes them in greater detail. The third section of this chapter provides a brief summary of the services that are available to meet readjustment needs of OEF and OIF service members, veterans, and their families when they return from theater. Chapter 5 describes in more detail the benefits and services and the programs that have been developed to meet those needs.

TABLE 2.1 Service Members Deployed by Component as of April 30, 2009

	Army	Navy	Air Force	Marine Corps	Coast Guard	TOTAL
Active component	582,733	320,140	269,220	209,175	3,539	1,384,807
National Guard[a]	239,336	N/A	65,295	N/A	N/A	304,631
Reserves	125,595	33,891	38,056	37,602	228	235,372
Total	947,664	354,031	372,571	246,777	3,767	1,924,810

[a]In contrast with the Army and Air Force, the Navy and Marine Corps do not have a National Guard component.
SOURCE: Defense Manpower Data Center, 2009b.

DEMOGRAPHICS OF THE ALL-VOLUNTEER MILITARY

Of the military personnel serving in OEF and OIF, 89% are men and 11% women. Nearly all troops who served in Vietnam were men (only 7,494 women served) compared with over 200,000 women serving in OEF and OIF (Jacobs, 2000; Tanielian and Jaycox, 2008). Today's service members are also somewhat older[1] and more likely to be married than their Vietnam-era counterparts (Jacobs, 2000). The distribution of personnel ages varies among components of the military. According to the 2007 Demographics Report, over 40% of active-component officers are over 35 years old compared to 15% of active-component enlisted personnel (DOD, 2007). The numbers of active-component officers and enlisted members by age and service branch are summarized in Table 2.2. Members of the Marine Corps have the lowest average age, 25.0 years, and the Air Force has the highest, 29.6 years. The reserve-component officers and enlisted members are much older than the active-component officers and enlisted members, respectively (DOD, 2007). Among reserve-component officers, 73.6% are over 35 years old compared with 44.2% of active-component officers. Similarly, 55.3% of the reserve-component enlisted members are 30 years old or younger compared with 72.6% of the active-component enlisted members. Table 2.3 summarizes the numbers of reserve-component officers and enlisted personnel by age group and service branch.

[1]Average ages of active-duty officers and enlisted members are 34.6 years and 27.1 years, respectively. The average ages of reserve officers and enlisted members are 40.6 years and 31.2 years, respectively (DOD, 2007).

TABLE 2.2 Percentage of Active-Component Members by Age and Service Branch in 2009

	Army (N = 582,733)		Navy (N = 320,140)		Air Force (N = 269,220)		Marine Corps (N = 209,175)		Total DOD (N = 1,381,268)[a]	
Age (Years)	Officers (N = 82,228)	Enlisted (N = 500,505)	Officers (N = 38,106)	Enlisted (N = 282,034)	Officers (N = 46,615)	Enlisted (N = 222,605)	Officers (N = 18,873)	Enlisted (N = 190,302)	Officers (N = 262,680)	Enlisted (N = 1,195,446)
<20	0	6.7	0	5.8	0	2.6	0	7.0	0	5.8
20–24	5.8	43.9	7.0	45.9	3.5	39.1	5.9	65.6	7.6	47.0
25–29	21.0	23.0	25.3	19.2	26.2	24.5	29.1	15.4	26.2	21.2
30–34	20.5	12.0	22.0	12.0	24.8	12.6	26.2	6.0	22.4	11.1
35–39	21.5	9.2	20.4	10.9	20.1	12.5	21.4	4.0	20.4	9.4
40–44	17.1	3.9	15.7	4.5	15.8	7.2	11.6	1.5	14.5	4.3
45–49	8.6	1.0	6.9	1.3	6.8	1.5	4.0	0.4	6.2	1.1
50–54	3.7	0.2	2.1	0.2	2.1	0.1	1.4	0	2.0	0.2
≥55	1.8	0	0.6	0	0.5	0	0.4	0	0.7	0

[a]Total numbers do not include the US Coast Guard. The Coast Guard is part of the armed forces but during peacetime is under the authority of the Department of Homeland Security rather than DOD. During wartime, the Coast Guard is under the authority of DOD through the Department of the Navy. About 4,000 members of the Coast Guard have been deployed to OEF or OIF (see Table 2.1).

SOURCE: Defense Manpower Data Center, 2009b.

TABLE 2.3 Percentage of Active-Component Members by Age and Service Branch in 2009

	Army National Guard (N = 239,336)		Army Reserve (N = 125,595)		Navy Reserve (N = 33,891)		Marine Corp Reserve (N = 37,602)		Air National Guard (N = 65,295)		Air Force Reserve (N = 38,056)		Total Reserve[a] (N = 539,775)	
Age (Years)	Officers (N = 25,852)	Enlisted (N = 213,484)	Officers (N = 23,655)	Enlisted (N = 101,940)	Officers (N = 6,811)	Enlisted (N = 27,080)	Officers (N = 3,429)	Enlisted (N = 34,173)	Officers (N = 8,892)	Enlisted (N = 56,403)	Officers (N = 48,8219)	Enlisted (N = 29,837)	Officers (N = 76,858)	Enlisted (N = 462,917)
<20	0	4.4	0	4.5	0	0.5	0	4.9	0	0.9	0	0.4	0	3.6
20–24	3.4	30.0	1.0	32.1	0.1	10.6	0.1	58.1	0.1	16.6	0.1	11.5	1.5	28.6
25–29	12.9	19.0	7.5	20.8	3.0	13.5	6.6	24.7	5.7	16.2	5.4	14.8	8.5	18.9
30–34	18.6	13.4	13.3	12.5	12.3	18.5	21.0	7.2	16.0	13.8	15.0	13.5	15.8	13.1
35–39	25.6	13.4	21.0	11.6	27.8	24.3	28.7	2.9	24.8	16.6	21.3	18.0	24.0	13.5
40–44	20.3	10.0	23.4	9.4	27.0	19.1	23.3	1.4	26.4	15.4	26.0	18.4	23.3	11.0
45–49	10.0	5.4	17.0	5.4	17.1	8.5	14.2	0.5	16.0	10.0	18.2	12.0	14.6	6.2
50–54	5.5	2.8	10.0	2.5	9.0	3.6	5.0	0.1	7.5	6.6	9.9	7.6	7.9	3.3
≥55	3.7	1.4	6.8	1.2	3.6	1.4	1.2	0	3.4	3.8	4.2	3.9	4.5	1.7

[a]Total numbers do not include Coast Guard reserve.
SOURCE: Defense Manpower Data Center, 2009b.

Of service members serving in OEF and OIF, about 66% are white, 16% black, 10% Hispanic, 4% Asian, and 4% other race (Armed Forces Health Surveillance Center, 2009) compared with 75% white, 12% black, 4% Asian, 9% other race, and 12.5% Hispanic of any race in the general population (US Census Bureau, 2000). During the Vietnam War, of the roughly 3.4 million service members who were deployed (one-third of them through the draft), close to 90% were white (Summers, 1985).

Marital status also differs somewhat by component and service branch. Of the active-component force, 55.2% are married (DOD, 2007); the Air Force has the highest proportion of married members, 60.6%. Senior enlisted and senior officers are also more likely to be married. In addition, 6.7% of active-component military personnel are reported to be married to other military personnel (dual-military marriages); again, the Air Force has the highest percentage, 12.8% (DOD, 2007). A higher percentage of female military personnel is in dual-military marriages than males: over 26% of female Marine Corps members and 30% of female Air Force members are married to members of the military. In the most recent DOD demographic report, about 3% of those who indicated that they were married in 2006 were divorced in 2007.

Among the reserve-component members, 49% are married. The proportion of members reporting to be married varied by service component: the Air Force reserve reported the highest percentage, 60.6%, and the Marine Corps reserve the lowest, 30.8%. As in the active component, senior enlisted and senior officers were more likely to be married (DOD, 2007).

Some 43% of active-component members have children, two on the average.[1] Similarly, reserve-component members who have children have an average of two. The breakdowns of active-component and reserve-component members with children by service branch are summarized in Table 2.4. About 5% of active-component members are single and have children. (In comparison, according to the US Census, 17% of US households were single-parent households in 2007.) In addition, another 3% are dual-military with children. The largest percentage of minor dependents of active-component members is 5 years old and younger (41%); in the reserve component, the largest percentage is children 6–14 years old (DOD, 2007). The distributions are shown in Figure 2.1.

TABLE 2.4 Active-Component Members with Children by Service Branch in 2007

	Army	Navy	Air Force	Marine Corps	Total[a]
Active component	241,704 (46.7%)	141,108 (42.5%)	150,008 (45.6%)	55,923 (30.0%)	588,743 (43.1%)
National Guard[b]	140,244 (39.8%)	N/A	51,743 (48.7%)	N/A	191,987 (41.6%)
Reserves	75,797 (39.9%)	35,683 (51.0%)	36,024 (50.6%)	7,976 (20.7%)	155,480 (25.2%)
Total	457,745 (40.2%)	176,791 (38.4%)	237,775 (42.8%)	63,899 (22.2%)	936,210 (38.3%)

[a]Total numbers do not include the Coast Guard.
[b]In contrast with the Army and Air Force, the Navy and Marine Corps do not have a National Guard component.
SOURCE: DOD, 2007.

[1]In the active-duty component, children include dependents 23 years old and younger. In the reserve component, children include dependents 22 years old and younger.

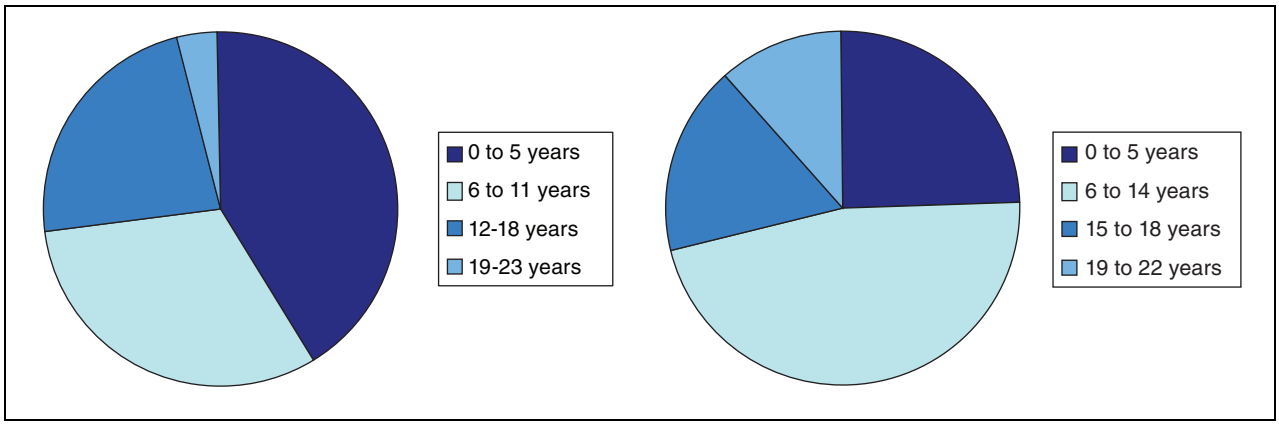

FIGURE 2.1 (A) Age of children (active component); (B) Age of children (reserve component).
SOURCE: DOD, 2007.

Over 1.1 million active-component members are stationed in the United States. Of them, 54.5% are in six states: California (12.9%), Virginia (11.4%), Texas (10.7%), North Carolina (8.4%), Georgia (6.0%), and Florida (5.1%) (DOD, 2007). Figure 2.2 illustrates the geographic distribution of states to which Army personnel return after deployment to OEF or OIF. The 10 states where the greatest number of reserve-component members reside are California (6.9%), Texas (6.4%), Florida (4.3%), Pennsylvania (4.2%), New York (3.6%), Georgia (3.5%), Ohio (3.4%), Alabama (3.1%), Illinois (3.1%), and Virginia (3.0%) (DOD, 2007). Figures 2.3 and 2.4 show the geographic distribution in the Army National Guard and Army Reserve, respectively.

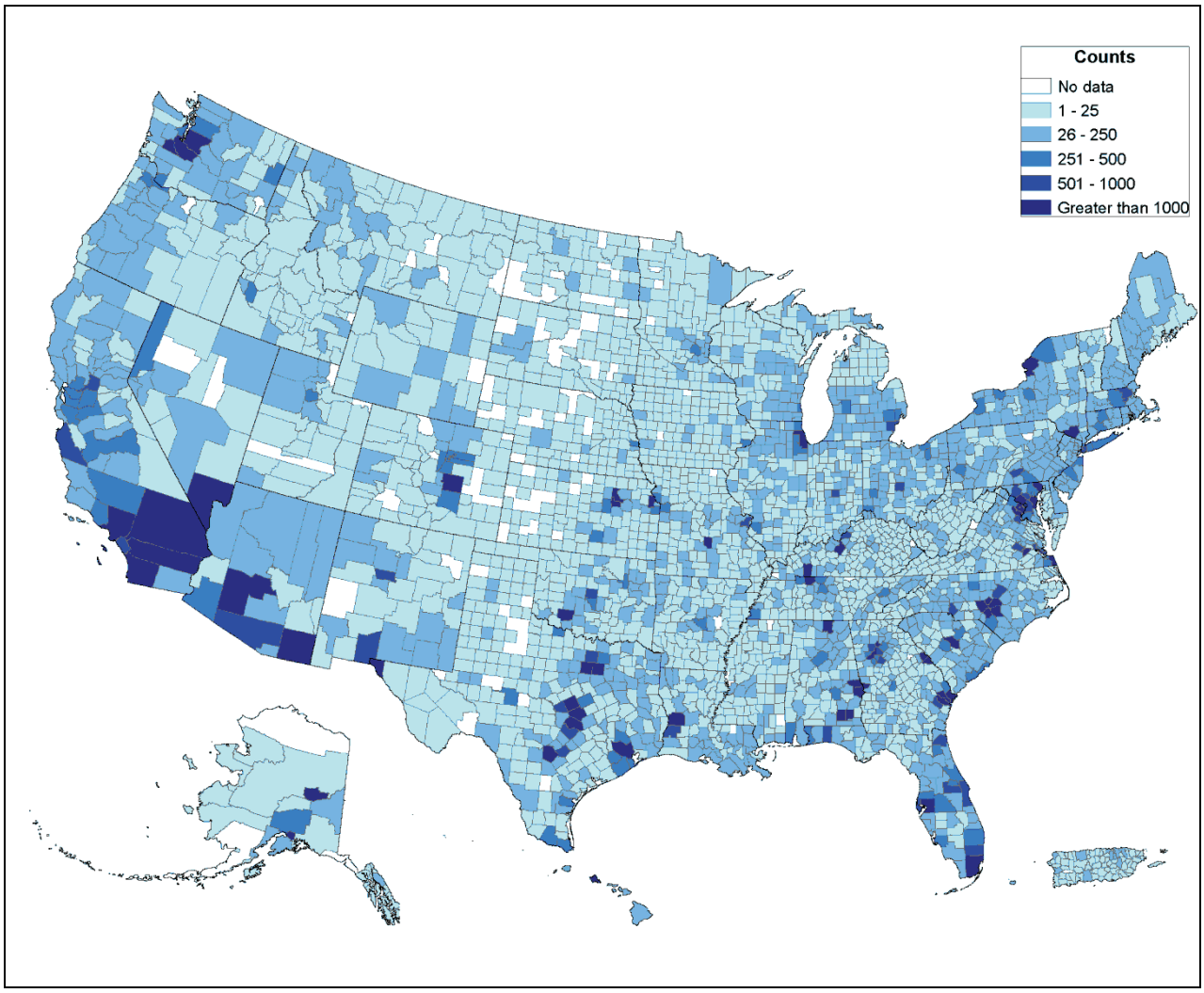

FIGURE 2.2 Counties of residence of deployed OEF and OIF Army (active-component) military personnel.
SOURCE: Defense Manpower Data Center, 2009a.

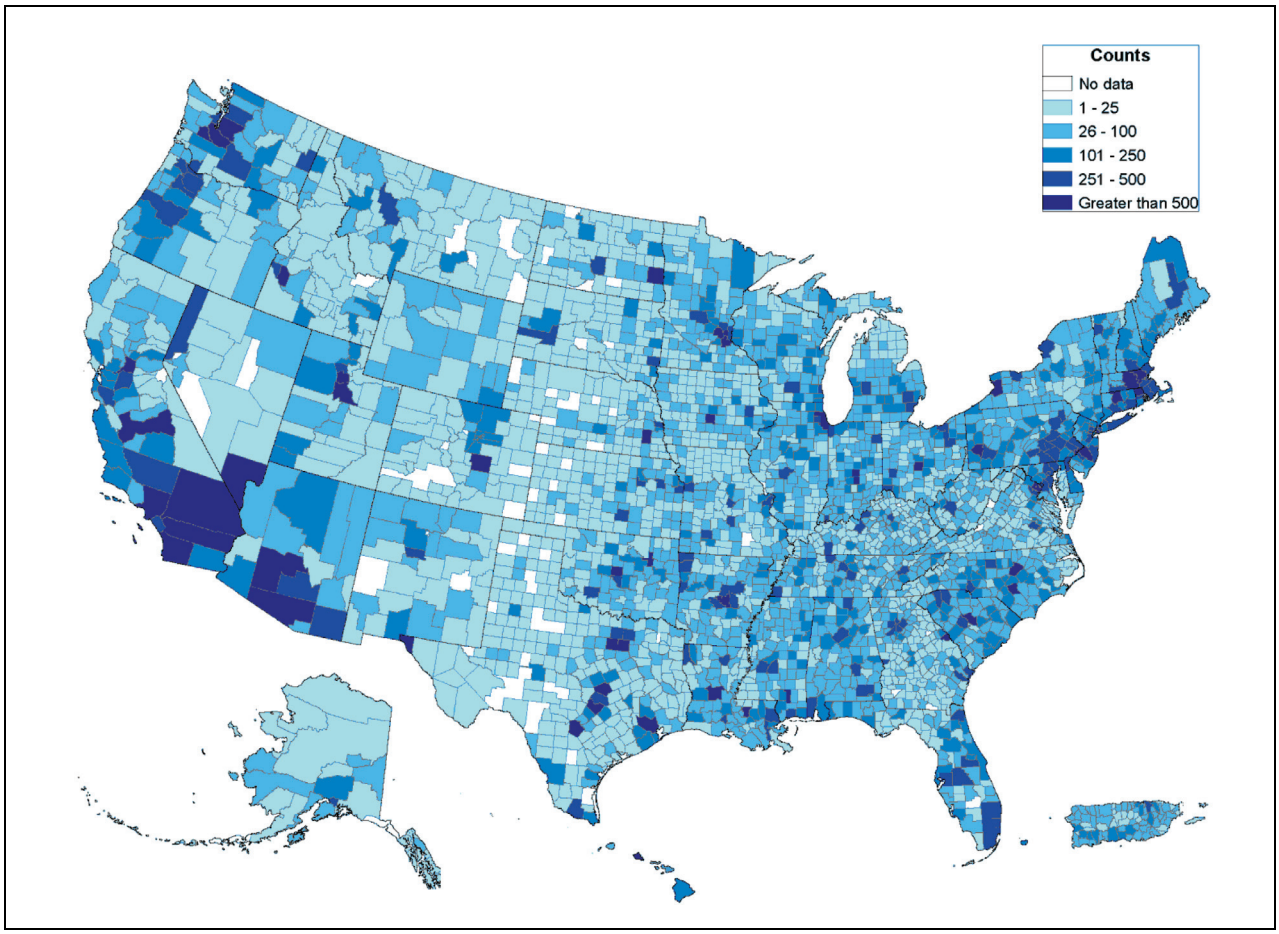

FIGURE 2.3 Counties of residence of deployed OEF and OIF Army National Guard military personnel.
SOURCE: Defense Manpower Data Center, 2009a.

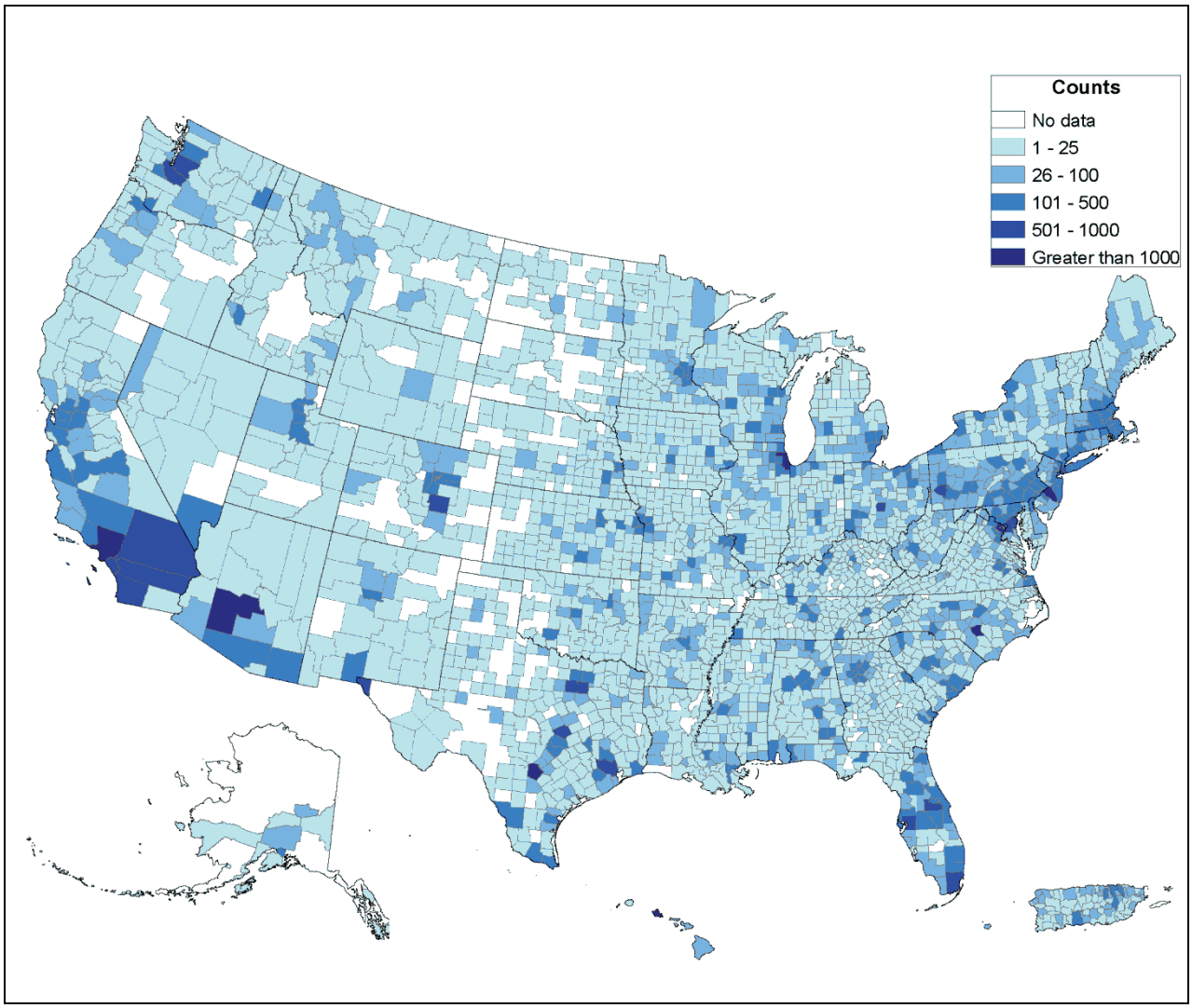

FIGURE 2.4 Counties of residence of deployed OEF and OIF Army reserve military personnel.
SOURCE: Defense Manpower Data Center, 2009a.

OPERATION ENDURING FREEDOM AND OPERATION IRAQI FREEDOM: UNIQUE CHARACTERISTICS

In addition to differences from previous wars in the demographic composition of the current all-volunteer force, deployment to OEF and OIF has some unique characteristics. Because the number of troops in the active component of the military is smaller than in past conflicts, DOD has had to send military personnel on repeat tours in theater to meet the demands of an extended conflict. Overall, about 40% of current military service members have been deployed more than once (Defense Manpower Data Center, 2009b); 263,150 service members have served more than two tours. Figure 2.5 illustrates the number of tours of duty to OEF or OIF of active-component members by branch of military service, and Figure 2.6 shows the number of tours of reservists. The repeat deployments have created more frequent transitions for the service members and their families to navigate, which in turn can create additional stress and

possible gaps in care—the stresses may not be the same for all service members, and there appear to be differences between members of the active component and members of the reserve component. Moreover, pressure on troops needed for deployment has resulted in some combat units spending longer tours and shorter periods at home between tours (referred to as dwell time) than the benchmark set by DOD (CBO, 2005). The stated policy for the active component units is 2 years of dwell time; as of August 1, 2008, service members were not to be deployed for more than 12 months (Davis et al., 2005). For the reserve component, the policy is 1 year deployed and 5 years at home (Davis et al., 2005). Figures 2.7 and 2.8 show the average time deployed and the average dwell time by branch for both components, respectively. The average dwell times are substantially shorter than the established policies. According to a 2007 Government Accountability Office (GAO) report, the demands of the conflicts have made implementation of the "new" policy difficult (GAO, 2007).

Another substantial difference in how troops are being used to fight in Iraq and Afghanistan compared with past conflicts has been the growing reliance on the National Guard and reserves (Table 2.1). Since the early 1990s, with the end of the Cold War, there has been a steady reduction in the total number of troops in the US military.[2] Although the decline was halted briefly at the time of Operation Desert Shield and Operation Desert Storm, thereafter the US military continued to reduce its active and reserve forces.[3] Despite the drawdown of military forces, the number of operational deployments increased for frequent peacekeeping missions and humanitarian operations (Jacobs, 2000). For example, the Army National Guard's combat brigades have been deployed since January 2003 at a rotation ratio[4] of 4.3, which is higher than the stated goal of seven Army National Guard units at their home stations for every one deployed (CBO, 2007b). Furthermore, the Army National Guard has long had more personnel slots in its structure than it has been able to fill, and this has led to understaffed units. The pre-existing personnel shortage has been exacerbated by OEF and OIF. When a unit is mobilized and deployed, it must be brought up to at least 100% of its authorized strength; this is accomplished by transferring personnel from other, "donor" units.[5] The resulting undermanning of donor units is exacerbated when donor units themselves are deployed (CBO, 2007b).

[2]There has been a 36% reduction in the size of the military since the end of the Cold War (Jacobs, 2000).
[3]By the end of 1993, the US Army had reduced to 10 combat divisions from the 18 combat divisions it had in the late 1980s (Jensen, 2002).
[4]Rotation ratio is the number of units necessary to support one unit on a rotational deployment.
[5]Units are commonly deployed at 105% or more of their authorized strength to compensate for personnel who become ill or injured during deployment.

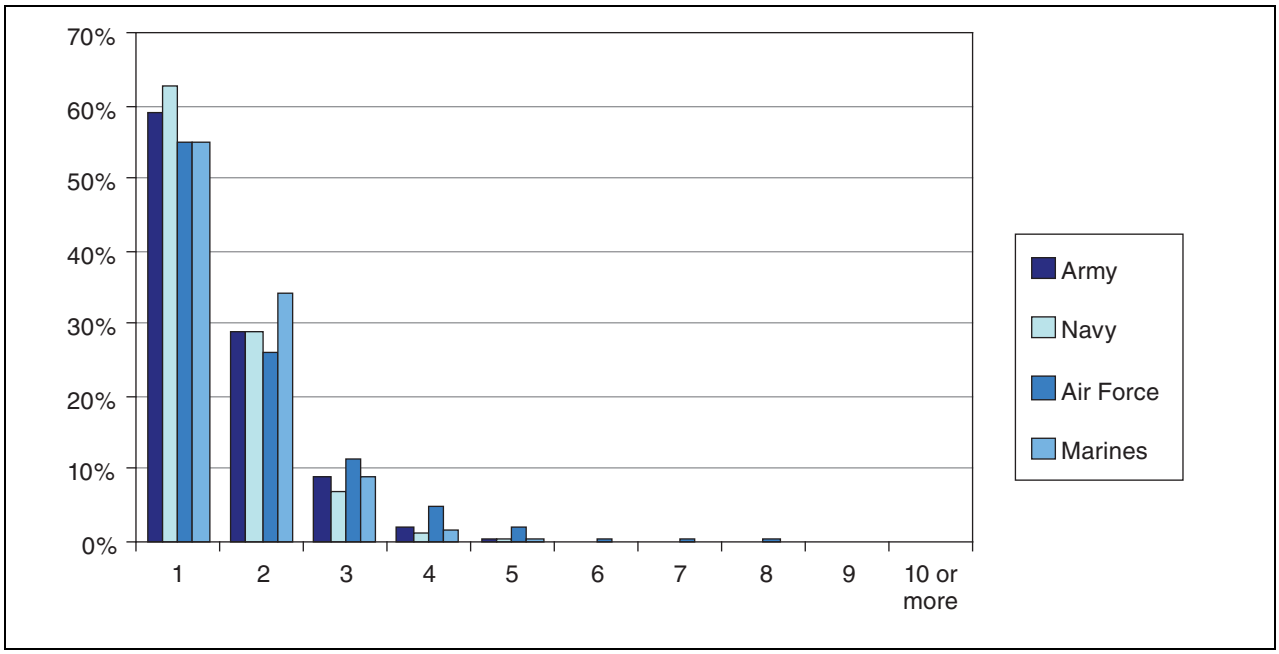

FIGURE 2.5 Number of times deployed to OEF or OIF by branch of military service (active component).
SOURCE: Defense Manpower Data Center, 2009b.

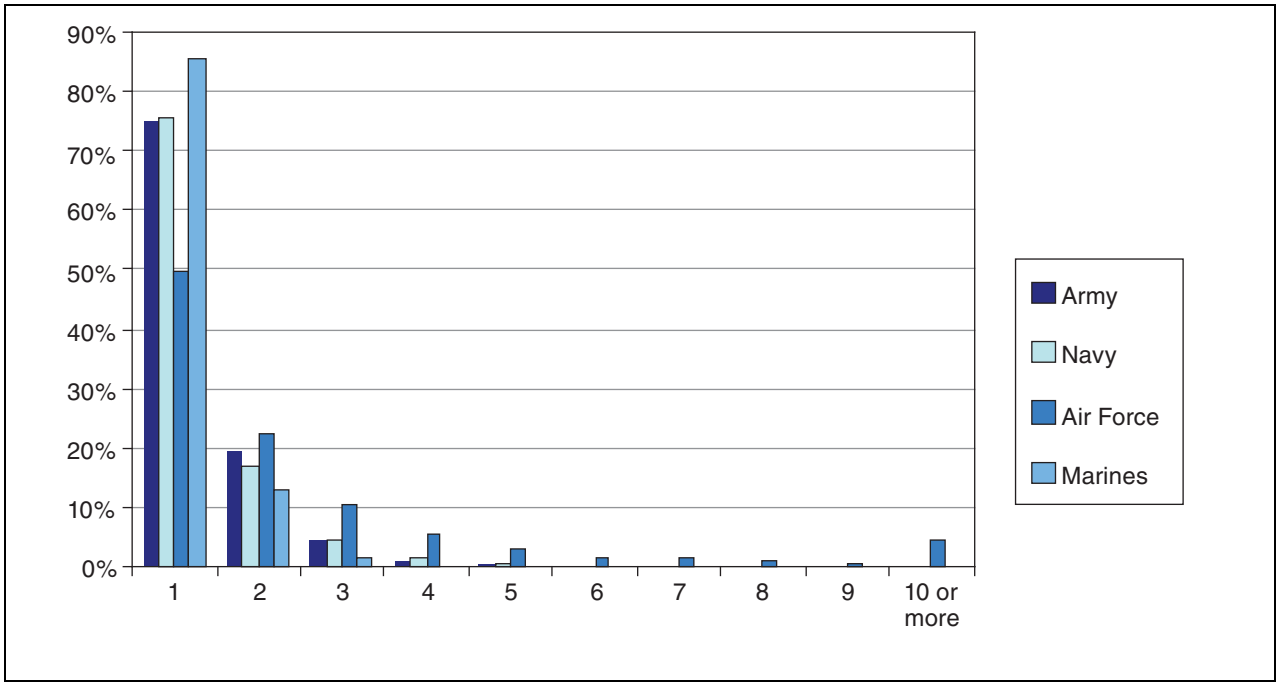

FIGURE 2.6 Number of times deployed to OEF or OIF by branch of military service (reserves).
SOURCE: Defense Manpower Data Center, 2009b.

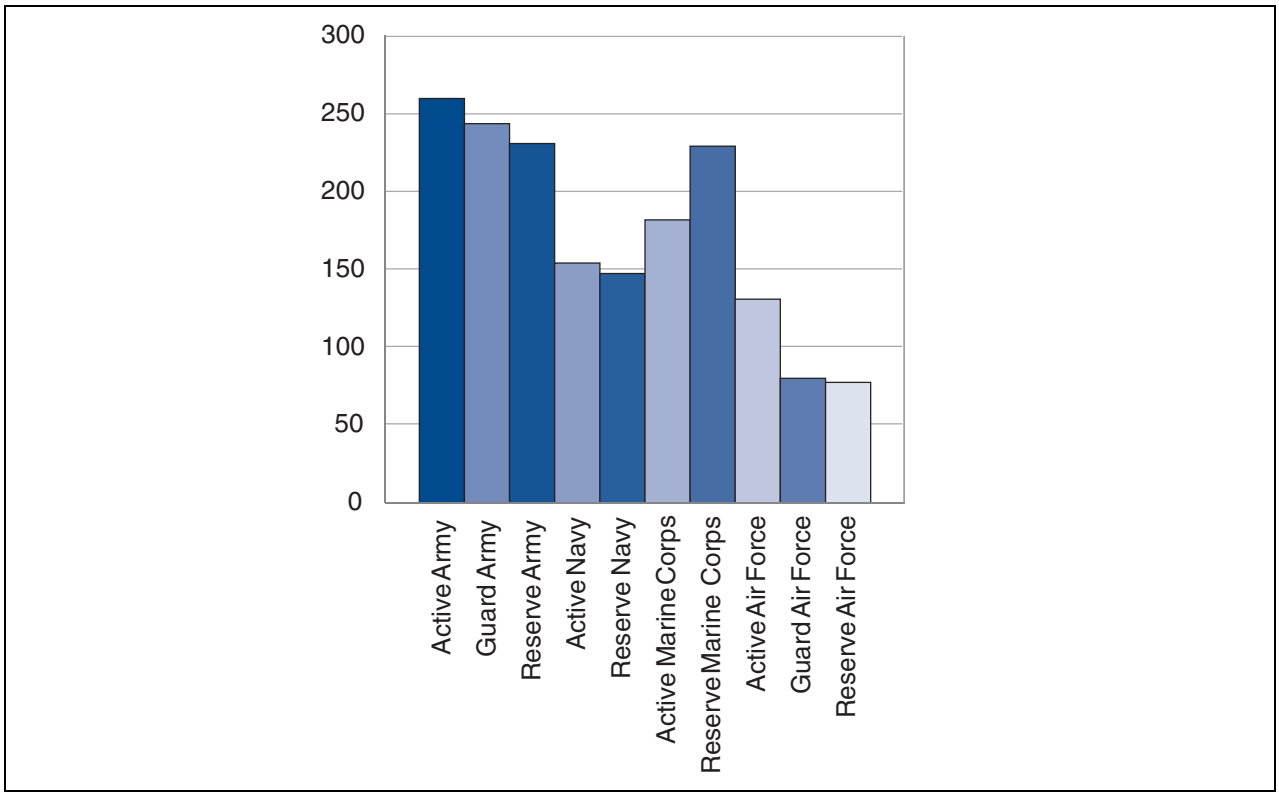

FIGURE 2.7 Average time deployed in days by branch of military subdivided by active component and reserve component.
SOURCE: Defense Manpower Data Center, 2009b.

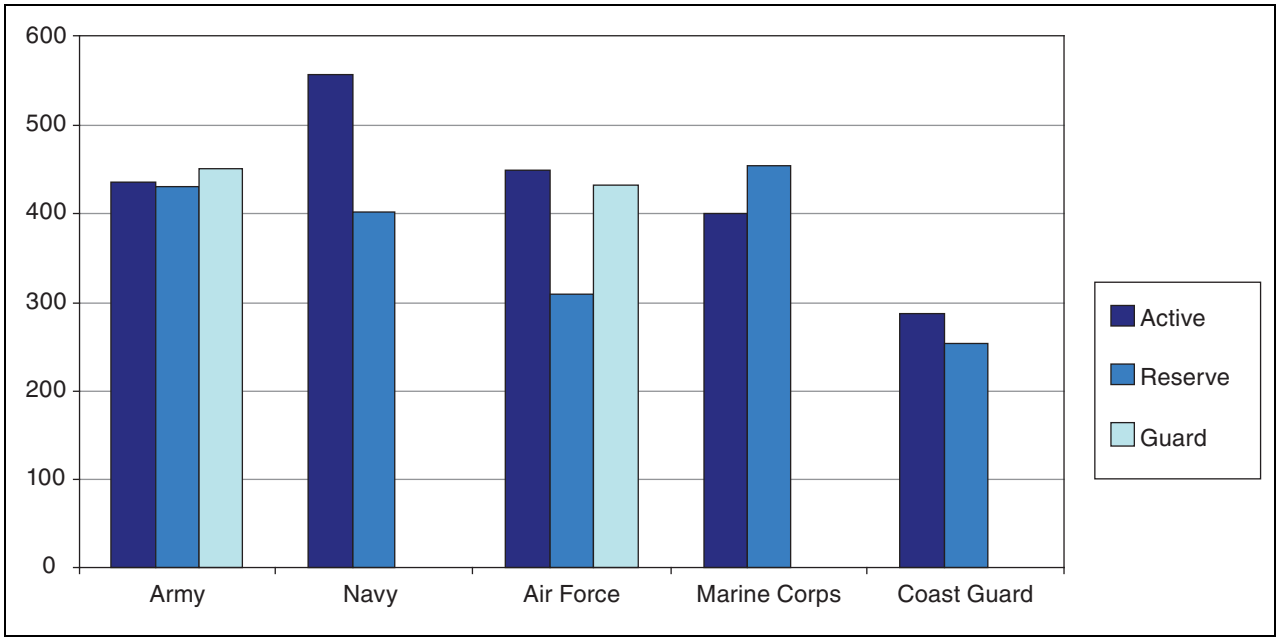

FIGURE 2.8 Average dwell time in days by branch of military subdivided by active component and reserve component.
SOURCE: Defense Manpower Data Center, 2009b.

CURRENT IMPACT ON OPERATION ENDURING FREEDOM AND OPERATION IRAQI FREEDOM SERVICE MEMBERS

Throughout history, service members have faced challenges in readjusting to civilian life. Obstacles in navigating the range of available DOD and Department of Veterans Affairs (VA) benefit programs have been consistently reported in connection with each conflict since World War I. In addition, each generation of soldiers has faced challenges specific to its experiences in readjusting to civilian society. The features noted in the previous section—the shift in demographics, the smaller active-duty all-volunteer force, the greater reliance on the reserve component, and the repeated and extended deployments—have also led to issues that did not have to be addressed in previous conflicts. For example, greater reliance on older, married soldiers creates a new array of concerns related to family-life readjustment and the well-being of older children. Repeat deployments can also lead to additional financial and employment-related burdens, although for personnel with skills in great demand special pay and allowances may provide additional compensation beyond the combat- and deployment-related pay (such as imminent-danger pay, hardship-duty pay, and family-separation allowances) (CBO, 2007a). The direct effect of deployment on the service members and their families is not known, but this section briefly summarizes some of the challenges related to readjusting after deployment that have been reported in the popular press, government reports, and the peer-reviewed literature. The issues are discussed in greater detail in Chapter 4.

Overview of Health Outcomes

The proportion of service members who have been killed or wounded in Iraq and Afghanistan has been lower than that in past conflicts. As of November 24, 2009, 5,286[6] US troops had died and 36,021[7] had been wounded (DOD, 2009). Fatality-to-wounded ratios have been 1:5.0 for OEF and 1:7.2 for OIF (DOD, 2009) compared with 1:2.6 in Vietnam and 1:1.7 in World War II (Leland and Oboroceanu, 2009). The lower number of fatalities is attributable to the improved body armor provided to service members and improved emergency medical care in the war zone (such as rapid evacuation to a trauma center). Consequently, more service members survive to return home with severe combat-related injuries that require additional care. For example, a large number of military personnel have survived blasts that resulted in such injuries as hearing loss and traumatic brain injury (TBI) (Myles, 2008). An estimated 10–20% of OEF and OIF Army and Marine Corps service members have sustained mild TBI that has been associated with various long-term health outcomes (IOM, 2009b). According to a study by Hoge et al. of 303,905 soldiers and marines, 19.1% of troops returning from Iraq and 11.3% of those returning from Afghanistan reported mental health problems compared with 8.5% of those returning from deployments elsewhere (Hoge et al., 2006).

Repeated deployments themselves have also contributed to mental health issues. About 27% of those who have been deployed three or four times have received diagnoses of depression, anxiety, or acute stress compared with 12% of those deployed once (MHAT-V, 2008).

[6]The number includes those who were killed in action and those who died under nonhostile circumstances.
[7]The number includes those who were wounded in action by hostile actions and returned to duty and those who were wounded and not returned to duty. It does not include injuries from nonhostile actions, such as pregnancy or illness.

Another troubling consequence of OEF and OIF deployment is the increase in the number of suicides reported in soldiers serving in Iraq and Afghanistan since the start of the conflicts. Historically, the suicide rate has been lower in military members than in civilians matched by age and sex. In 2003, the suicide rate in the US military was estimated at 10–13 per 100,000 troops, depending on the branch of the military (Allen et al., 2005), compared with 13.5 per 100,000 civilians 20–44 years old and 20.6 per 100,000 civilian men 20–34 years old, the demographic that covers most US soldiers in Iraq (Centers for Disease Control and Prevention, 2009). However, recent data from the National Violent Death Reporting System indicate that male veterans[8] 18–29 years old had a suicide rate of 45.0 per 100,000 in 2005 compared with 20.4 in males in that age group in the general population. As of October 2009, there were already 133 reported suicides (90 confirmed and 43 pending), which is the record for a year; in the same period in 2008, there were 115 confirmed suicides of active-duty soldiers (Department of the Army, 2009); hence, 2009 might well see a new record. A new National Institute of Mental Health–sponsored study of suicide in the US armed forces has been started to investigate the risk factors for soldier suicide.

Problems with substance abuse, particularly alcohol, have also been reported in OEF and OIF military personnel and veterans in the peer-reviewed literature and in the popular press. It is unknown whether the alcohol problems differ between the military population and the civilian population. In the United States, about 1 in 12 adults abuses alcohol or is dependent on alcohol; alcohol problems are highest among people 18–29 years old (NIAAH, 2007). On the basis of data from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions, between 1991–1992 and 2001–2002, alcohol abuse[9] increased in the US civilian population from 3.03% to 4.65% while the rate of alcohol dependence[10] declined from 4.38% to 3.81% (Grant et al., 2004).

A recent study found that 43% of active-component service members reported binge drinking within the preceding month (Stahre et al., 2009). Moreover, on the basis of mass-media reports, diagnoses of alcoholism and alcohol abuse increased from 6.1 per 1,000 soldiers in 2003 to an estimated 11.4 as of March 31, 2009. Another emerging substance-abuse issue is that many of today's military personnel are more likely to be addicted to prescription medications, such as opiates for pain control (Curley, 2009). However, because of the long-standing policy whereby self-referral for substance abuse can be reported to the chain of command, the numbers being reported are probably underestimates of the true number. The readjustment needs associated with these health outcomes are discussed in greater detail in Chapter 4.

Overview of Social Outcomes

Employment, Financial Hardships, and Homelessness

Several non-health-related problems faced by service members have been documented. Gaps in pay and benefits that have resulted in debt and other hardships have been reported. For example, there is evidence that service members have been pursued for repayment of military

[8]The suicide rate includes veterans of all conflicts.

[9] Diagnosis of alcohol abuse required a respondent to meet at least 1 of the 4 *DSM-IV* criteria defined for abuse in the past year.

[10] Diagnosis of alcohol dependence required the respondent to meet at least 3 of the 7 *DSM-IV* criteria for dependence during the past year.

debt, such as unpaid expenses for lost or damaged military equipment, medical services, household moves, insurance premiums, and travel advances. Often times, however, they were pursued for collection of military debts that were incurred through no fault of their own; those included overpayment of pay and allowances, pay calculation errors, and erroneous leave payments (GAO, 2006). The service members have also been prevented from obtaining loans (GAO, 2005). Moreover, there have been reports in the popular press that National Guard and reserve members have been unable to return to the civilian jobs that they left before their deployments (*60 Minutes*, November 2, 2008) despite protective provisions in the Uniformed Services Employment and Reemployment Rights Act of 1994, a federal law intended to ensure that persons who serve or have served are not disadvantaged in their civilian careers because of their service. According to the Pentagon, over 10% of the National Guard and reserve members report such employment-related problems (*60 Minutes*, November 2, 2008). The problem is especially common among those employed by small businesses: Veterans for America found that some small businesses avoid hiring citizen soldiers (Veterans for America, 2008). Almost 20% of recent veterans are unemployed, and 25% of those who are employed earn less than $21,000 per year (Myles, 2008).

According to the National Coalition for Homeless Veterans (2009), veterans are more likely to become homeless because their work skills may not be readily transferable to the civilian sector. In addition, although there are no data on the number of homeless OEF and OIF veterans, because of the large number of troops returning from Iraq and Afghanistan with mental health problems or TBI, there is concern that they may be at higher risk for homelessness.

Women

Women have made up a greater percentage of the military force during OIF and OEF than in previous conflicts. Because in most families mothers have primary responsibility for arranging for and providing care for children, large-scale deployments have raised concerns about the effects of mothers' deployments on their children and about the possible strains on families if both partners must maintain careers to preserve their living standards (McFarlane, 2009). A recent study by Vogt et al. (2008) found that active-component women were more susceptible to stressors of deployment than women in the reserve component. The study also found that the longer a parent is absent, the greater the risk of family dysfunction after deployment, and the risk is greater when the deployed parent is the mother.

Family Relationships

Deployments and frequent relocation are inherent in military life. The physical separation, especially when the deployments are to combat zones, is difficult for families. Often, families have little warning of a deployment, and the deployments extend beyond the originally stated duration. Adjusting to the different roles that each partner plays before and after deployment (for example, going from an interdependent state to an independent state and back to an interdependent state) is one of the challenges that married couples face. Service members are expected to work long and unpredictable hours, especially in preparation for deployment, and this puts additional stresses on couples and families. Moreover, when service members return from deployment with physical injuries or cognitive deficits, these problems may contribute to marital conflict. Although those effects have not been studied extensively in the military population, data on marital satisfaction in civilian populations suggest that depression,

posttraumatic stress disorder, and TBI all adversely affect personal relationships and pose a higher risk of divorce (Davila et al., 2003; Kessler et al., 1998; Kravetz et al., 1995; Kulka et al., 1990). Recent data from the Army show an overall increase in the number of divorces since the start of OEF and OIF, especially in female soldiers. Cotton (2009) reported that in 2008, 8.5% of marriages ended in divorce in women compared with 5.7% in 2000. Similarly, although the rate is lower, 2.9% of men reported marriages ending in divorce in 2008 compared with 2.2% in 2000.

The rate of domestic violence is higher in military couples than in civilian couples. Marshall et al. (2005) reported that wives of Army servicemen reported significantly higher rates of husband-to-wife violence than demographically matched civilian wives. Although it has been reported that spousal abuse has declined over the last few years, domestic violence still affects 20% of military couples in which the service member has been deployed for at least 6 months (Booth et al., 2007).

Children

The conflicts in Iraq and Afghanistan have taken a toll on the children of US troops deployed there. Children of US troops deployed to Iraq and Afghanistan reportedly sought outpatient mental health services 2 million times in 2008 (Andrews et al., 2008). Inpatient visits by military children have increased by 50% since 2003. Additionally, an increase in the rate of child maltreatment has been reported since the start of the conflicts. Rentz et al. (2007) conducted a time-series analysis from 2000 to 2003 to investigate the effect of deployment on the occurrence of child maltreatment in military and nonmilitary families. They reported a statistically significant two-fold increase in substantiated maltreatment in military families in the 1-year period after September 11, 2001, compared with the period before then. A recent study of over 1,700 military families (Gibbs et al., 2007) found that the overall rate of child maltreatment, especially child neglect, was higher when the soldier-parents were deployed than when they were not deployed. Because of the demographics of those who are serving in Iraq and Afghanistan (older service members who are married and have children), the number of children who have been affected by these conflicts is clearly larger than in past conflicts.

Caregivers

Many severely injured service members depend on family members for daily caregiving. The findings of the President's Commission on Care for America's Returning Wounded Warriors (in what has been known as the Dole–Shalala report) reported in 2007 that in a random sample of 1,730 OEF and OIF veterans, 21% of active-component, 15% of reserve-component, and 24% of retired service members had a family member or friend who had been forced to leave a job to care for an OIF or OEF veteran full-time (President's Commission on Care for America's Returning Wounded Warriors, 2007). In addition, 33% of active-component, 22% of reserve-component, and 37% of retired service members reported that a family member or friend relocated temporarily to spend time with a wounded service member while he or she was in the hospital.

OVERVIEW OF FEDERAL READJUSTMENT RESOURCES

US troops who serve are entitled to benefits, such as health care. Health care is delivered by DOD through the military health system (MHS) to active-component service members and their dependents, to reserve-component members and their dependents when they are on active duty, and to some military retirees and their dependents. The MHS delivers care through 59 hospitals and over 400 clinics (TRICARE, 2009). The system is supplemented through TRICARE (formerly known as the Civilian Health and Medical Program of the Uniformed Services), which provides civilian health benefits for military personnel, military retirees, and their dependents. However, TRICARE services are time-limited after separation.[11] Moreover, health-care providers who accept TRICARE may be harder to find in nonmilitary communities where some reserve-component service members and their families live (IOM, 2010; Kudler and Straits-Tröster, 2009) than near military installations.

Service members who separate from the military may be eligible for health care administered by VA, which is organized into 23 veterans-integrated service networks where veterans who qualify (Table 2.5) can get free health care. All veterans with at least 24 months of continuous active-duty service and other than a dishonorable discharge are eligible to receive care from VA. OEF and OIF veterans have 5 years after their military separation to enroll in VA health-care services. Enrollment eligibility is determined through an eight-step process (see Chapter 5) in which the veteran[12] completes and submits the Application for Health Benefits (VA Form 10-10EZ). In 7–10 days, a decision letter is sent to the veteran stating his or her enrollment eligibility (Task Force on Returning Global War on Terror Heroes, 2007). Effective January 28, 2003, OEF and OIF veterans who enroll within the first 5 years after separating from the military are eligible for enhanced enrollment placement into priority group 6 for 5 years after discharge. VA provides other benefits to veterans, including home loans, life insurance, vocational counseling, employment assistance, and education and training.

TABLE 2.5 Health-Care Priority Groups

Priority Group	Description
1	Veterans with service-connected disabilities (SCDs) rated 50% or more disabling
2	Veterans with SCDs rated 30% or 40% disabling
3	Veterans who are former prisoners of war, were awarded the Purple Heart, were discharged for an SCD, have SCDs rated 10% or 20% disabling, or were disabled by treatment or vocational rehabilitation
4	Veterans who are receiving aid and attendance benefits or are housebound and veterans who have been determined by the VA to be catastrophically disabled
5	Veterans without SCDs or with noncompensable SCDs rated 0% disabling who are living below established VA means-test thresholds, veterans who are receiving VA pension benefits, and veterans who are eligible for Medicaid benefits
6	Veterans of either World War I or the Mexican Border War; veterans seeking care solely for disorders

[11]In the case of members of the reserve component, the period ends a few months after return from deployment; this forces family members to change providers.

[12]Veterans are exempt from enrollment requirements if they meet one of the following criteria: if a veteran has a service-connected disability rating of 50% or more; if less than 1 year has passed since the veteran was discharged from military service for a disability that was incurred or aggravated in the line of duty, but the VA has not yet rated it; and if the veteran is seeking care from VA for only a service-connected disability (Panangala, 2007).

Priority Group	Description
	associated with exposure to chemical, nuclear, or biologic agents in the line of duty (including Agent Orange, atmospheric testing, and Project 112/Shipboard Hazard and Defense); and veterans with compensable SCDs rated 0% disabling
7	Veterans with net worth above the VA means-test threshold and below a geographic index defined by the Department of Housing and Urban Development (HUD)
8	Veterans with net worth above both the VA means-test threshold and the HUD geographic index

SOURCE: IOM, 2009a. Adapted from VA, 2008.

In addition to the DOD and VA health care available to returning OEF and OIF veterans, numerous informal services are provided by veterans' service organizations and charities that are funded through federal sources, state programs, and private foundations. Some organizations, such as the Wounded Warrior Project, provide employment support that helps to match returning OEF and OIF veterans with job opportunities. Others, such as Grace After Fire, provide on-line recovery services to female veterans. Because of the great breadth and number of initiatives that are available at the grassroots level, it is beyond the scope of this report to provide a comprehensive review of them; however, Chapter 5 provides more detail on the available federal programs that have been developed in response to OEF and OIF.

CONCLUSION

The current conflicts in Afghanistan and Iraq pose unique challenges to DOD and VA. Even as they continue to address the readjustment needs of OEF and OIF service members, veterans, and their families, more work remains. The demands on the forces, the repeated deployments, the shorter dwell times, the activation of parents, and the separation of families have all resulted in unmet needs for many of those who serve. The following chapters provide more detailed information on what those needs are, what programs are available, and what the possible next steps to address the needs might be.

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3

SUMMARY OF FINDINGS FROM PREVIOUS CONFLICTS

Any comprehensive assessment of the mental and physical health and other readjustment needs of those deployed in Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) and their families necessarily takes place in a historical context based on conflicts of the past. There is a long history of both public policy and scientific concern with regard to the effects of military service on individual health and well-being (Hyams et al., 1996); involvement in warfare can have dramatic consequences for the physical and mental health and well-being of military personnel (Pols and Oak, 2007). Few events are more stressful than war, and throughout the history of warfare, it has been repeatedly documented that the trauma of combat, high-stress environments, or simply being deployed to a theater of war can have immediate and long-term disruptive physical, psychologic, and other consequences in those who are deployed to foreign soil and to their family members (IOM, 2008).

Changes in weaponry, strategy, and technology have had well-documented effects on wounding mechanisms and patterns, injuries, and casualty rates (e.g., Owens et al., 2008). However, clusters of physical symptoms and the symptom patterns observed have not changed dramatically (Marlowe, 2001) or at least are not readily distinguishable among various wars (Jones et al., 2002). One can make a reasonable case that the psychologic wounds of war also are not dramatically new or different (Tanielian and Jaycox, 2008):

> Combat stress (historically termed soldier's heart, shell shock or battle fatigue) is a known and accepted consequence of warfare. Although diagnoses such as PTSD [posttraumatic stress disorder] were not formally defined and adopted until the 1970's [formalized by inclusion in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* in 1980], the existence of psychiatric casualties in war undoubtedly goes back as far as warfare itself. (Marlowe, 2001; Rosenheck and Fontana, 1999)

This chapter provides a historical perspective of physical, mental, physical, and other outcomes from previous conflicts and what we might learn about readjustment needs related to them, but its primary focus is on mental health outcomes; physical injuries will be discussed in Chapter 4. A number of textbooks in military medicine offer a more complete historical perspective and review more fully the array of medical challenges and outcomes faced by military personnel during mobilization and deployment and after deployment, including two volumes in the Borden Institute's *Textbooks of Military Medicine series: Military Preventive*

Medicine: Mobilization and Deployment, Vol. 1 (2003); and *Military Preventive Medicine: Mobilization and Deployment*, Vol. 2 (2005). This chapter also discusses the differences between the previous conflicts and the current wars in Iraq and Afghanistan.

FROM ANCIENT GREECE AND ROME TO THE RUSSO-JAPANESE WAR

In effect, PTSD has existed for centuries, although it has been given various names (Bille, 1993; Thakur, 2008). Early Greek, Roman, and Egyptian descriptions of the effects of war refer to acute stress reactions (Kennedy and Duff, 2001). Gabriel (1987), for example, cited many references to psychologic casualties in the Greek and Roman armies, noting that combat-related mental health problems are well known throughout history. In ancient Rome, legionnaires were encouraged to settle in rural areas after their wars, to "decompress" gradually in the serenity of isolation from the city's activity. Japanese lore tells of samurai warriors who retired to tend the "perfect garden," away from other people and the stresses of warfare (Williams, 1987). Nostalgia was a term coined in the late 17th century to describe young soldiers returning from war who "cease[d] to pay attention and [became] indifferent to everything which maintenance of life requires of them" (Auenbrugger and Neuberger, 1966). During the Napoleonic wars, physicians recognized multiple factors related to nostalgia—including cultural, social, and environmental issues—in addition to participation in battle itself (Thakur, 2008).

Prevention of and treatment for nostalgia were important interests during the Civil War (Hammond, 1883), generally viewed as the first modern war. Nostalgia was seen as including a cluster of stress-induced symptoms known as soldier's heart, irritable heart, and effort syndrome—symptom patterns classified in more recent times under the various rubrics of combat fatigue, battle shock, combat stress reaction, and PTSD (IOM, 2008; Marlowe, 2001). During the Russo-Japanese War (1904–1905), the first detailed description of "war neurosis" emerged with the first use of psychiatric specialists by the Russians (Thakur, 2008).

Not surprisingly, the evolving perceptions of warfare and its aftermath over many centuries are reflected in the folklore and literature of various cultures and societies. For example, Boman (1987) provides a broad historical perspective documenting that the stereotyped representation of the dangerous and unpredictable ex-serviceman—as reflected in adverse publicity about the propensity of veterans of the Vietnam conflict to indulge in violent, antisocial, and criminal behaviors—is by no means a modern phenomenon. Sir James Frazer in *The Golden Bough* (1978) and Sigmund Freud in *Totem and Taboo* (1960) both noted how returning warriors in primitive societies were regarded as dangerous and tainted and often requiring a period of ritual isolation and cleansing before being accepted back into the community. Western civilization since Homeric times has displayed a morbid fascination with the violent (and quite often gruesome) deeds of veterans of the Trojan wars, as amply documented in the Iliad and the Odyssey and retold for Roman audiences in the Aeneid. Several Shakespearean plays refer to acute stress reactions and include particularly adverse characterizations of a "nefarious collection of war veterans," including Sir John Falstaff, Richard III, Iago, Macbeth, and Cassius.

WORLD WAR I, WORLD WAR II, AND THE KOREAN CONFLICT

Although contemporary accounts indicate that stress-induced disorders existed in previous wars, even in the period of the American Civil War, medical and cultural biases were such that no taxonomy for recognizing and diagnosing them was readily available (Marlowe, 2001). It was not until World War I that specific clinical syndromes came to be associated with combat duty; previously, such casualties were assumed to reflect poor discipline or cowardice (Goodwin, 1987). The thinking that dominated diagnostic thought and ways of treating stress-related illnesses in World War I and World War II (and beyond) developed in the late 19th and early 20th centuries and included new categories of diagnoses related to hysteria, hypochondria, and neurasthenia (Marlowe, 2001). The guiding conceptual and theoretical developments emerged from advances in psychiatry and in turn influenced the evolution of the field in civilian society (Pols and Oak, 2007):

> The involvement of psychiatrists in military conflicts [during the 20th century] not only resulted in the development of extensive expertise in the management of war-related psychiatric syndromes but also profoundly affected the development of the entire discipline of psychiatry, which incorporated new theoretical perspectives, diagnostic categories, and treatment strategies first proposed and developed by military psychiatrists.

First observed during the Russo-Japanese War (Marlowe, 2001), shell shock—the signature injury of World War I (Jones et al., 2007)—and war neurosis became the popular labels given to acute physical and psychologic symptoms and reactions to combat (Rundell et al., 1989). Shell shock was initially thought to result from brain concussion from nearby shell explosions (for example, from artillery), but the recognition that the symptoms characteristic of shell shock and effort syndrome could also emerge without exposure to explosions suggested psychologic origins (Hyams et al., 1996; Jones et al., 2007; Shephard, 2001; Thakur, 2008). Symptoms of classic war neurosis first described clearly during World War I were similar to those later described by veterans of the Vietnam conflict (Goodwin, 1987). The prolonged chronic symptoms observed in the Vietnam War were later recognized and labeled "postcombat psychiatric disorder" (Sargent and Slater, 1940). Of the 2 million men sent overseas during World War I, about 8% (153,994) were lost to the war effort because of psychologic problems (Strecker, 1944).

The most comprehensive recent review of research evidence on the physiologic, psychologic, and psychosocial effects of deployment and deployment-related stress on health and well-being (IOM, 2008) explicitly included epidemiologic studies of veterans of World War II, the Korean War, and more recent conflicts. The research evidence base on those cohorts is much narrower than that on cohorts of the Vietnam War and more recent conflicts, but evidence of persistent effects, especially with regard to psychologic consequences and PTSD, was observed in those who served in the earlier wars.

During World War II, the psychologic symptoms ascribed to war neurosis were called battle or combat fatigue or exhaustion (Marlowe, 2001; Thakur, 2008). During the early years of that war, psychiatric casualties had increased by some 300% over those in World War I even though the preinduction psychiatric-rejection rate was "three to four times higher" (Figley, 1978). Overall, 1.39 million men suffered some psychiatric symptoms, and 38% (504,000) of

those who saw combat were permanently lost to the war effort (Ginzberg et al., 1955). Many of the psychiatric casualties were returned to combat after treatment near the front line (Grob, 1994; Shephard, 2001), and a persistent and chronic form of battle fatigue was observed in many veterans who were hospitalized for neuropsychiatric care (Friedman et al., 1994; Grob, 1994; IOM, 2008; Southwick et al., 1994). Grinker and Spiegel (1945), for example, described such cases of "war neurosis" in members of combat air crews, and several studies followed World War II veterans after their combat experiences 5 years (Brill and Beebe, 1955), 10 years (Futterman and Pumpian-Midlin, 1951), 15 years (Archibald et al., 1962), 20 years (Archibald and Tuddenham, 1965), and 24 years (Keehn et al., 1974).

It was during World War II that the major paradigm for viewing the psychologic and psychosocial consequences of deployment shifted "from causation based upon constitutional predisposition in markedly vulnerable population subsets to the concept that all normal human beings could break down. Any soldier could be made behaviorally dysfunctional as well as physically symptomatic by the stresses, anxieties, and strains affecting him in the war zone environment" (Marlowe, 2001).

Those concepts were carried forward to the Korean War, but they and the operational structures and practices used for handling and treating such combat-related stress were initially forgotten. In the first year of the Korean War, men were lost to psychologic symptoms at a rate of 250 per 1,000—almost 7 times the rate in World War II (Blair and Hildreth, 1991). As the war became more stabilized, the rate fell to an average of 32 per 1,000 men, slightly lower than the rate in World War II (Gabriel, 1987).

Comparative studies of health status among war cohorts have found that combat exposure and violence are generally associated with psychiatric disorders in World War II, Korean Conflict, and Vietnam-era veterans (Archibald and Tuddenham, 1965; Breslau and Davis, 1987; Elder and Clipp, 1989; Fontana and Rosenheck, 1994a; National Center for Posttraumatic Stress Disorder, 2008). However, many of the studies grouped World War II and Korean veterans together rather than treating them as distinct cohorts for separate analyses, thereby potentially confounding differences in health effects that reflect widely varied circumstances of service in the two wars (Fontana and Rosenheck, 1994a; Villa et al., 2002).

THE VIETNAM WAR

The war in Vietnam, in which more than 3 million American military service members participated in 1964–1975 and more than 58,000 died, was the longest military conflict in US history. It also heralded critical shifts in how wars are fought (for example, the "war without fronts") and in how the effects of war-zone deployment on the physical and mental health of US service members were studied.

As noted above, studies of prior wars were limited by reliance on samples of convenience and failure to include adequate measures of important war-zone stressors and other exposures that have potential long-term consequences for the postwar health and well-being of those who served. We summarize here key findings of studies of the Vietnam War with respect to war-zone stressor exposure, prevalence of psychosocial and health-related readjustment problems, and risk factors for development of readjustment problems. The purpose is to provide some context for

the readjustment problems that could be associated with psychosocial and health-related outcomes common in the current conflicts.

Assessment of Exposure to Combat and Other War-Zone Stressors

One of the first studies of a community sample (that is, not a treatment-seeking sample) of war-zone–deployed military service members to attempt to assess specific details of war-zone stress exposure, conducted by the Center for Policy Research, led to the publication of Legacies of Vietnam: Comparative Adjustment of Veterans and Their Peers (Egendorf et al., 1981). The legacies investigators developed de novo a 10-item, self-report scale of events that are indicative of combat exposure, for example, firing on the enemy, receiving fire, and encountering mines or booby traps. On the basis of responses about the 10 items, the investigators classified 27% of participants as having experienced heavy combat exposure, 31% medium exposure, 33% low exposure, and 9% no exposure.

Similarly, the Vietnam Experience Study (VES), conducted by the Centers for Disease Control (CDC, now the Centers for Disease Control and Prevention) in the mid-1980s (CDC, 1988a, 1988b), was part of a three-component effort to assess the health effects of service in Vietnam, including morbidity and mortality. Findings based on the proxy measures controlling for combat exposure indicated that 72% of Vietnam-veteran participants began their military service before 1969, 34% had a tactical primary Military Occupational Specialty, and 57% served in a combat unit (infantry, artillery, armor, cavalry, or engineer). Secondary analysis of VES data (Barrett et al., 1996) indicated that, according to the modified combat scale, 23% of the VES Vietnam veterans had low or no combat exposure, 22% medium exposure, 29% high exposure, and 26% very high exposure.

In the National Vietnam Veterans Readjustment Study (NVVRS) (Kulka et al., 1990), the investigators used a set of nearly 100 survey interview items—items from prior studies and new items that covered domains not previously included—to assess war-zone stress exposure. NVVRS analyses identified four multi-item stressor-exposure dimensions for men (exposure to combat, exposure to abusive violence and related conflicts, deprivation, and loss of meaning and control) and six for women (exposure to wounded and dead, exposure to enemy fire, direct combat involvement, exposure to abusive violence, deprivation, and loss of meaning and control). For both sexes, secondary factor analyses suggested that a single index captured the variance across the multiple dimensions well, and this supported the use of a single, overall exposure indicator. Additional analyses supported determination of cut points to separate “high” exposure from “low–moderate”; 25% of men and 40% of women were classified as having high exposure to war-zone stress. Although the more detailed measures of exposure to war-zone stressors were developed in the context of studies of the Vietnam War helped us to understand the impact of war on combatants, the fact that most of the studies’ exposure measures relied on retrospective self-reporting has been a cause of concern because it could open the door to bias from exaggeration of exposure (e.g., McNally, 2003, 2005).

To assess the validity of that criticism empirically, Dohrenwend and colleagues (2006, 2007) used military and other archival records to create individualized “military historical measures” (MHMs) of probable exposure of each of the 1,200 male Vietnam veterans who participated in the NVVRS to combat and other war-zone stressors. An MHM is the casualty rate in the unit in which the person served during service in Vietnam. Findings from analyses of the

correspondence of self-reports with archival information include documentation of a strong positive correlation between the Dohrenwend et al. MHMs and the NVVRS self-report measures. Dohrenwend et al. also noted that more than 90% of 10 veterans classified as low probable exposure on the basis of archival information were classified as low–moderate on the basis of NVVRS self-reports and that 72.1% of those classified as very high probable exposure on the basis of archival information were classified as high exposure on the basis of self-reports. The latter finding is consistent with understating, rather than exaggerating, exposure.

Outcomes (Readjustment Problems)

When the Vietnam War ended in 1975, a debate emerged over the nature and extent of the problems that veterans of the conflict were experiencing as they returned to civilian life. Many articles and books were published, and readjustment was a popular topic in the mass media, on television, and in movies. Some saw Vietnam veterans as "walking time bombs," and others claimed that most returnees had readjusted easily and were leading productive lives.

Empirical studies of Vietnam-veteran readjustment have suggested that, in essence, both claims were true. The NVVRS research team concluded that "the majority of Vietnam theater veterans have made a successful re-entry to civilian life and currently experience few symptoms of PTSD or other readjustment problems" (Kulka et al., 1990), but that for a sizable minority of men and women who served in Vietnam, "the war is not yet over" in that they continued to suffer from emotional turmoil a decade or more after they ended their military service. Findings also demonstrated that those with PTSD were at very high risk for a broad spectrum of other readjustment problems, such as relationship problems, depression, substance abuse, unemployment, and violence.

We summarize below empirical findings about some of the important readjustment problems that have been shown to be associated with service in Vietnam.

PTSD, Depression, and Other Mental Health Problems

After the end of the war, estimates based on expert opinion or clinical observation suggested that as few as 250,000 (Wilson, 1978) or as many as 2 million of the 3 million (Egendorf, 1982) men and women who served in the war had developed PTSD. The introduction of PTSD into the official psychiatric nosology in the United States in 1980, however, stimulated community epidemiologic studies of war-related outcomes in Vietnam veterans, many of which focused on PTSD. The most comprehensive assessment of the prevalence of PTSD and other readjustment problems among Vietnam veterans comes from the NVVRS (Kulka et al., 1990). In 1986–1987, the NVVRS team assessed nationally representative samples of Vietnam-theater veterans (n = 1,632), other veterans of the war era (n = 716), and civilian counterparts (n = 668) matched to the theater veterans on age, sex, and race or ethnicity. Cases of PTSD were identified on the basis of a comprehensive, multimeasure assessment that included self-report scales and semistructured clinical assessments. Findings indicated that 15.2% of male and 8.5% of female Vietnam veterans had current PTSD (preceding 6 months) at the time of the study. In contrast, current PTSD prevalence estimates based on the same comprehensive assessment procedure among other era veterans were 2.5% in men and 1.1% in women and among civilian counterparts were 1.2% in men and 0.3% in women. Estimates of lifetime prevalence in Vietnam veterans, based on semistructured clinical interviews, were 30.9% in men and 26.9% in women.

The other epidemiologic studies of Vietnam veterans focused on smaller subsets of the population, used less comprehensive assessments, or both. Those studies reported somewhat lower lifetime prevalence of PTSD when compared with the results from the NVVRS study. For example, O'Toole et al. (1996) studied physical and mental health outcomes in a simple random sample of male members of the Australian Army who served in Vietnam (n = 641). On the basis of the semistructured clinical interviews conducted in 1990–1993, the current prevalence of PTSD was estimated to be 11.6% and the lifetime prevalence 20.9%. Similarly, in the VES (CDC, 1988c), investigators examined health and mental health outcomes in a cohort of Army enlisted men who served a single a tour of duty in Vietnam and a similar cohort who did not serve in Vietnam. On the basis of survey interviews conducted in 1985–1986, the CDC team estimated a current prevalence of PTSD (in the preceding month) of 2.2% and a lifetime prevalence of 14.7% in Vietnam veterans. CDC investigators did not report PTSD prevalence estimates for the comparison group.

The VA study (Goldberg et al., 1990) included only male, monozygotic twin pairs who served in the US military during the Vietnam era; all participants were drawn from VA's Vietnam Era Twin Registry. Using information collected by a mixture of mailed questionnaires and telephone interviews conducted in 1987 that included an ad hoc PTSD assessment, the investigators estimated the prevalence of PTSD in the 715 twin pairs who were discordant for Vietnam service (that is, one twin served in Vietnam, and the other served in the military but not in Vietnam) to be 16.8% in twins who served in Vietnam compared with 5.0% in twins who served elsewhere.

Finally, investigators from one of the five sites of NIMH's Epidemiologic Catchment Area study (Helzer et al., 1987) reported PTSD prevalence based on survey interviews conducted in 1982 with self-identified Vietnam veterans (n = 64) in a community (St. Louis area) sample. Findings suggested a lifetime PTSD prevalence in those who reported being wounded in combat of 20% (three of 15), and a lifetime prevalence in combat veterans who did not report being wounded of 4% (one of 28).

Those and other studies also documented other mental health problems. The NVVRS documented a higher prevalence of current major depression in Vietnam veterans than in era veterans (in males, 2.8% versus 0.5%; in females, 4.3% versus 1.4%). CDC's VES also documented a higher prevalence of depression in male Vietnam veterans than in era veterans (4.5% versus 2.3%). More important, the NVVRS documented that the prevalence of major depression was closely related to the prevalence of PTSD: the prevalence of current major depression was 15.7% in male Vietnam veterans with current PTSD and 0.5% in those without and 23.0% in female veterans with current PTSD and 2.3% in those without.

NVVRS findings on current substance-use disorders showed a similar pattern of comorbidity with PTSD. The prevalence of current alcohol abuse or dependence was 22.2% in male Vietnam veterans with current PTSD and 9.2% in those without and 10.1% in female veterans with current PTSD and 1.5% in those without. Those findings are consistent with findings from studies of PTSD associated with other categories of traumatic event as well—PTSD is frequently accompanied by both depression and substance abuse.

Concerning comorbidity, both general population studies (Breslau et al., 1991; Helzer et al., 1987; Kessler et al., 2005) and studies of Vietnam veterans (see Deering et al., 1996; Schlenger et al., 1999, for reviews) indicate that the experience of other psychiatric disorders is

common among people with PTSD. High rates of lifetime or current diagnoses of the following disorders have been reported in Vietnam veterans with PTSD: major depression and dysthymia, anxiety disorders other than PTSD, substance-use disorders, and in male veterans, antisocial personality disorder. Some data suggest that the occurrence of substance-use disorders in people with PTSD may result from efforts to reduce the intensity of PTSD symptoms (e.g., Chilcoat and Breslau, 1998).

Physical Health

The most comprehensive assessment of the physical health status of Vietnam veterans was conducted in the VES (CDC, 1988b), in which a subset of Vietnam-veteran participants (n = 2,490) and comparison participants (n = 1,972) in the VES interview component underwent standardized physical examinations conducted at a single clinic in 1987. Interview findings indicated that although 80% or more of both groups rated their health as "excellent" or "good," more Vietnam veterans than comparisons rated their health as "fair" or "poor" (19.6% versus 11.1%). Medical examination results, however, showed few statistically significant differences between Vietnam veterans and comparisons, particularly given the very large number of comparisons made.

The NVVRS also included a self-report list of chronic conditions, and findings indicated no differences in reports of chronic conditions between male Vietnam veterans and era veterans. Substantial differences were found, however, between Vietnam veterans who reported high versus low–moderate exposure to war-zone stressors. Failure to have taken account of stressor exposure in the analyses is an alternative explanation of why the VES found little concordance between survey report and medical examination findings.

O'Toole et al. (2009) assessed health status and its correlates in a longitudinal cohort of Australian veterans that they assessed 22 years (1990–1993) and again 36 years (2005–2006) after their service in Vietnam. The presence of health conditions was assessed by self-report, and prevalences were compared with estimates from Australia's National Health Survey (NHS), with adjustment for age and sex. Findings indicated that the prevalences in Vietnam veterans of 47 of the 67 chronic health conditions covered were higher than the expected prevalences based on the Australian National Health Survey and the prevalences of four were lower. Regression analyses showed that service in the military and having combat-related PTSD decades after the war are consistently related with physical illness in later life.

In addition to prevalence of specific health conditions, studies of Vietnam veterans have examined functioning and quality of life. For example, secondary analyses of NVVRS data by Zatzick et al. (1997) examined the relationship of PTSD to six indexes of functioning and quality of life among male Vietnam veterans. Findings indicated that PTSD was significantly associated with poorer outcome in five of the six domains with sociodemographic characteristics controlled and that the association remained with four domains (physical limitations, current unemployment, compromised physical health, and diminished well-being) even when comorbid psychiatric and physical illnesses were also controlled. Similar secondary analyses that examined those relationships in female Vietnam veterans (Zatzick et al., 1997) found significant associations of current PTSD with five of the six domains with sociodemographic characteristics controlled and that the association remained with three domains (compromised physical health, bed days in preceding 2 weeks, and current unemployment) when comorbid psychiatric and physical illnesses were also controlled.

Mortality

An alternative approach to examination of health effects of specific exposures is to compare causes of death between those exposed and comparable people who were not exposed. Two large studies of postwar mortality in Vietnam veterans have been conducted: one by VA and one by CDC.

CDC (1987) used military records to select two samples of men who entered service in the Army in 1965–1971, served only one term of enlistment, and achieved a pay grade no higher than E5 at the time of discharge. For the veteran cohort (n = 9,324), only one tour in Vietnam was allowed; comparisons (n = 8,989) were limited to duty in the United States, Germany, or Korea. The initial followup period was from date of discharge (alive) to December 31, 1983. Deaths were identified from multiple sources, including the National Death Index, VA's Beneficiary Identification and Records Locator Subsystem (BIRLS), the Social Security Administration, and the Internal Revenue Service. Findings indicated that excess all-cause mortality in Vietnam veterans over comparisons occurred primarily in the first 5 years after separation, and that excess was due to external causes of deaths, such as motor vehicle accidents, suicide, homicide, and accidental poisonings. The latter category includes deaths due to overdose of prescription drugs, illicit drugs, or alcohol or any combination thereof. After the first 5 years, mortality in the cohorts was similar "except for drug-related deaths, which continued to be elevated" in the Vietnam veterans. CDC followed the cohorts again (Boehmer et al., 2004), extending the followup period by 17 years (through December 31, 2000). Findings suggested that over the full followup period, the only difference in mortality between Vietnam veterans and comparisons was in external causes of death: Vietnam veterans experienced significantly more deaths from unintentional poisonings, including drugs.

VA's study of Vietnam-veteran mortality examined veterans who died after leaving the service. Using VA's BIRLS file, VA investigators (Breslin et al., 1988) identified 24,235 men who served in the US Army or Marine Corps in Vietnam and died 1965–1982, and 26,685 Army or Marine Corps veterans who had not served in Vietnam but had died in the same period. Findings indicated significant excess deaths in the Vietnam veterans due to motor-vehicle accidents, non–motor-vehicle accidents, and accidental poisonings. In addition, Marine Corps veterans, but not Army veterans, appeared to have excess deaths due to lung cancer and non-Hodgkin lymphoma. VA investigators (Watanabe et al., 1991) later added 11,325 Army or Marine Corps veterans who died in 1983–1984 to the cohort studied earlier. The enhanced study included two additional referent groups to strengthen the ability to draw causal inferences. Findings indicated that Army veterans experienced excess deaths due to external causes, laryngeal cancer, and lung cancer, and Marine Corps veterans experienced excess deaths due to external causes. With the larger sample, it was possible to attribute the earlier finding of excess Marine Corps deaths to a lower-than-expected number of deaths in marines who had not served in Vietnam rather than to an excess in those who had.

Other Psychosocial Problems

A variety of readjustment problems in addition to mental and physical health problems have been studied. We summarize here some of the key findings.

In the NVVRS, all subgroups of male Vietnam veterans reported significantly more violent acts in the preceding year than the comparison groups and scored higher on a scale of

active expression of hostility. Vietnam veterans with high exposure to war-zone stressors reported the highest rates of violence and hostility. Male Vietnam veterans with PTSD were nearly 6 times as likely to report a history of homelessness or vagrancy as those without. Overall, 35% of male veterans with PTSD reported a history of homelessness or vagrancy, 40% scored at the highest level of hostility, 25% reported committing 13 or more acts of violence in the preceding year, and almost 50% reported having been arrested or jailed more than once since the age of 18 years. Female Vietnam veterans, including those with high exposure to war-zone stressors, reported fewer violent acts in the preceding year than the comparison groups.

Similarly, Vietnam veterans with PTSD reported substantially more family and relationship problems than those without. The NVVRS included interviews with the spouses or partners of a subsample of Vietnam veterans. Jordan et al. (1992) noted that separate interviews with Vietnam veterans and their spouses or partners document that there are many serious problems in the families of those with PTSD. Findings indicated higher levels of violence, higher levels of psychologic distress in spouses and partners, and the greater likelihood that children in these families will have behavioral problems than the children of veterans without PTSD.

Finally, a review of the little empirical research on associations between traumatic-stressor exposure and labor-market outcomes for Vietnam veterans conducted 25 years after the end of hostilities in Vietnam suggested that exposure to war-zone stressors not only compromises mental and physical health but can have deleterious economic consequences (Fairbank et al., 1999a). For example, among employed male Vietnam veterans in the NVVRS, those who met criteria for current PTSD earned significantly less per hour than those without PTSD. White and Hispanic Vietnam veterans who currently met criteria for war-related PTSD were also less likely to be employed more than a decade after the war ended than were their counterparts without PTSD. In black veterans, higher levels of exposure to war-zone stressors were associated with a greater likelihood of not being employed, although the association between war-related PTSD and employment status was not statistically significant (Fairbank et al., 1999b).

Risk Factors for Readjustment Problems

Because exposure to trauma is always included in observational studies (we do not randomize people to different magnitudes of trauma exposure), the scientific basis for attributing PTSD symptoms to combat or other exposures must rely on quasiexperimental designs. To examine the potential predisposition or other factors that contribute to the development of combat-related PTSD, the NVVRS team (Kulka et al., 1990) did extensive modeling of the correlates of PTSD prevalence among the multiple quasiexperimental comparison groups included in the design, such as high versus low–moderate war-zone stressor-exposure groups of theater veterans, theater veterans versus era veterans.

The modeling found that the differences between groups in PTSD prevalence observed in the NVVRS cannot be explained fully by differences in premilitary characteristics or exposures, although there are important premilitary risk factors for combat-related PTSD. Clearly, the most influential risk factor is the degree of exposure to combat and other war-zone stressors. Specific other factors that played important roles included lower age at the time of exposure; problem behaviors in childhood, particularly the symptoms of antisocial personality disorder; growing up

in a family that had trouble making ends meet; and having one or more first-degree relatives who had a mental disorder.

Fontana and Rosenheck (1994a) used structural equation-modeling techniques to examine causality in secondary analyses of the NVVRS data. They found that in addition to exposure to war-zone stressors, factors contributing to combat-related PTSD included lack of support from family and friends on homecoming, Hispanic ethnicity, having been abused as a child, and family instability.

More broadly, research involving Vietnam veterans indicates that in addition to the nature and severity of the specific stressor exposure, both pre-exposure and postexposure factors can affect the probability of PTSD after exposure. In the general population, the most consistently reported pre-exposure risk factors for PTSD in people exposed to trauma are female sex, pre-existing psychiatric disorder, family history of psychopathologic conditions, minority-group status, lower age at the time of the exposure, and prior exposure to trauma, including abuse in childhood (Breslau et al., 1991, 1998; Brewin et al., 2000; Bromet et al., 1998). Like general-population studies, analyses of NVVRS data have found associations between combat-related PTSD in Vietnam veterans and instability in the family of origin, antisocial behavior in childhood, being Hispanic, being younger at the time of exposure, and prior history of trauma (Fontana, 1997; Fontana and Rosenheck, 1994b; King et al., 1999; Schlenger et al., 1999).

Compared with research on pre-exposure factors, however, relatively few studies have examined the role of postexposure factors in PTSD. In the NVVRS, stressful life events and a lack of social support in the postwar period were found to place Vietnam veterans at increased risk for PTSD (Fontana and Rosenheck, 1994b; Fontana, 1997; King et al., 1999). Although NVVRS findings have provided some insights into the role of prewar and postwar experiences in PTSD in Vietnam veterans, the insights are somewhat limited by the NVVRS's less comprehensive assessment of civilian stressors.

THE PERSIAN GULF WAR

By historical standards, the 1991 Persian Gulf War (Operation Desert Storm) was unusual in many respects (cf. Marlowe [2001]):

- It was mostly an air war against an overmatched enemy.
- It was short.
- It resulted in very few casualties for the coalition (fewer than 200 were killed).

Yet the most striking aspects of that deployment occurred after the Gulf War was over, when thousands of veterans began reporting a wide variety of symptoms—sleeplessness, aching joints, memory loss—that remained undiagnosed, many evocative of those reported by veterans of previous wars and attributed to the psychologic trauma of combat (Marlowe, 2001).

In response to growing concerns about the physical and psychologic health of Gulf War veterans of the 1990–1991 conflict, Congress passed two laws in 1998, PL 105-277 and PL 105-368, directing the secretary of veterans affairs, through the National Academy of Sciences, to review and evaluate the scientific and medical literature regarding associations between illness and exposure to toxic agents, environmental or wartime hazards, and preventive medicines or vaccines in members of the armed forces who were exposed to such agents and to identify "other

agents, hazards, or medicines or vaccines to which members of the Armed Forces might have been exposed." Five years after the official end of the 1991 Gulf War, the Presidential Advisory Committee on Gulf War Veterans' Illnesses concluded that psychologic stress was probably a major contributing factor to the broad array of illnesses in Gulf War veterans (Lashof et al., 1997) and encouraged the government to continue research on stress-related disorders.

In response to those laws, the Institute of Medicine (IOM) has carried out a comprehensive, continuing program to examine health risks posed by specific agents and hazards to which Gulf War veterans might have been exposed during their deployment has resulted in several major reports, including one on the impact of deployment itself (IOM, 1995, 1996, 1999, 2000, 2003, 2004, 2005, 2006a,b). *Gulf War and Health, Volume 4: Health Effects of Serving in the Gulf War* (2006a) found that veterans of the Gulf War report higher rates of nearly all the symptoms examined than their nondeployed counterparts, including not only individual symptoms but also chronic multisymptom illnesses and such conditions as fibromyalgia, chronic fatigue syndrome, and multiple chemical sensitivity. The literature reviewed also indicated that deployment places the veterans at increased risk for a number of psychiatric illnesses, including PTSD, other anxiety disorders, depressive disorders, and substance abuse.

Those results and growing concerns regarding the nature of OEF and OIF and the deployment of the veterans resulted in a more comprehensive review and evaluation of physiologic, psychologic, and psychosocial effects of deployment-related stress on military veterans from World War II through the conflicts in Afghanistan and Iraq, which placed the associations observed in 1991 Persian Gulf War veterans in this broader context (IOM, 2008). The physical and mental health of Persian Gulf War veterans continues to be the subject of active research and debate (e.g., Blanchard et al., 2006; Eisen et al., 2005; Hotopf et al., 2003; Kang et al., 2003), and it is by no means certain that the psychiatric burden of the Persian Gulf War is fully understood (Larson et al., 2008; Pols and Oak, 2007).

SUMMARY

In this chapter, we have provided a brief historical perspective or context for describing, viewing, and understanding the potential readjustment challenges and needs of military personnel, veterans, and their families resulting from deployment to the conflicts in Iraq and Afghanistan. It is certainly true that every war is unique in several important respects, but overwhelming empirical evidence on multiple wars clearly documents that exposure to combat, other war-zone stressors, or even deployment itself can have immediate and long-term physical, psychologic, and other consequences and that such consequences have, in most respects, been universal and similar throughout the history of warfare even though the context and nature of warfare have changed dramatically. However, throughout history, society and culture—and the medical and cultural perspectives of the time—have played a powerful role in how the effects of war on soldiers have been viewed, the perceived nature and causes of the effects, and how they were treated. And those factors have changed dramatically. Although such consequences have been observed, documented, and reflected on throughout the history of warfare—and in many societies, cultures, and military organizations—contemporary cultural and medical viewpoints have not provided a viable context, taxonomy, or paradigm for recognizing and understanding their etiology. The cultural, conceptual, and theoretical perspectives on war-zone stress exposure and its consequences continue to evolve. For example, from their comparative study of

symptoms reported by veterans from 1900 to the Persian Gulf War, Jones et al. (2002) noted that the explanations given to war-related syndromes reflect broader conceptual concerns and the state of medical knowledge and of how physicians classify and interpret functional somatic presentations. It was not until World War I that specific clinical syndromes came to be associated with combat duty; previously, such casualties were assumed to reflect poor discipline or cowardice. However, before the Vietnam War, psychiatric consensus held that soldiers who recovered from an episode of mental breakdown during combat would suffer no adverse long-term consequences, and psychiatric disability commencing after the war was believed to result from pre-existing conditions (Pols and Oak, 2007). As a result, military psychiatrists paid little attention to postwar syndromes until after Vietnam, when a major change in psychiatric interest reflected recognition that many veterans suffered from chronic psychiatric disorders, which led, in part, to establishment of PTSD as a distinct diagnostic category in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders*.

It is also important to note the evolution of military psychiatry throughout the 20th century in its efforts to understand, prevent, and treat for the psychiatric consequences of war. That evolution has encompassed implementation of screening programs to detect factors that predispose people to mental disorders, provision of early intervention strategies for acute war-related syndromes near the front lines ("forward psychiatry"), and mitigation of the symptoms of long-term psychiatric disability after deployment. It has also had substantial effects on the discipline as a whole and has led to the incorporation of new theoretical perspectives, diagnostic categories, and treatment strategies based on the military experiences (Pols and Oak, 2007).

It is in that context that the implications of the current conflicts are best articulated and understood not only for the military leadership but for those who serve in the conflicts and for their families. Although the experiences of those deployed to Iraq or Afghanistan are similar in many respects to the experiences of those deployed in previous conflicts, there are a number of distinctive and important differences in who is serving, how they are deployed, and how the conflicts are being fought. The differences might have substantial consequences for the types and severity of challenges and readjustment issues and problems likely to be experienced by the men and women serving in OEF and OIF and what types of support they and their families need, both within theater and on their return. Moreover, most of the differences are especially notable in that neither our military forces nor the country as a whole has had substantial relevant experience with many of the key features of organization and warfare that make these conflicts most distinctive.

Perhaps the most fundamental difference from past conflicts is that OEF and OIF together make up the longest sustained US military operation since the Vietnam War and the first such extended conflict dependent on a smaller military that comprises only volunteers. Whether or not one agrees that the extended nature of these conflicts has subjected the military to demands that "it was not sized, resourced, or configured to meet" (Tanielian and Jaycox, 2008), that this situation has created a sizable and unique burden on the military and its service members is undeniable, and its potential implications and consequences are legion.

First, the size of the available pool of active-duty personnel and the extended nature of the conflicts have required an unprecedented use of the reserves and National Guard, activated to serve far longer deployments than most had ever expected, experienced, or, arguably, been optimally trained for. The troops also tend to be older, to leave civilian jobs behind, and to return to communities that usually do not have the types of medical, psychiatric, and other support

personnel available to them that were available when they were on active duty. Those characteristics have important implications for successful reintegration and readjustment.

Second—and this also reflects substantial reductions in the number of troops available and the extended nature of the conflicts—the number, length, and pace of military deployments have increased dramatically in recent years, and breaks between deployments have been infrequent. Greatly facilitated by use of the draft, the 12- to 13-month rotational policy established in Vietnam was adopted in part in response to research conducted in World War II (in which military personnel served for the duration of the conflict) because it demonstrated an important relationship between length of time in combat and risk of psychologic breakdown. Cognizant of that history, DOD has established clear rotational policies on length of deployments and length of time between deployments. However, the demands of the current conflicts have made compliance with the policies difficult, and the implications of being unable to meet the standards are of obvious significance for understanding the readjustment needs of service members and their families.

Third, and perhaps more subtle, the standards for a military that is dependent on conscription are different from those for an all-volunteer force. Establishing and maintaining an all-volunteer force place a premium on careful recruitment, screening, selection, and retention; those chosen are in effect special and valuable assets. However, the quality and readiness of those available can vary widely from year to year on the basis of the state of the economy, employment, and other factors and thus require a critical balance between achieving the numbers of men and women required to maintain force levels and screening out those with characteristics that might predispose them to adverse consequences (such as behavior problems and PTSD) but who otherwise are well suited and qualified for the military. Such choices have implications not only for finding enough people to serve but for the potential types of problems experienced when they are deployed and the numbers and types of support personnel (such as psychiatrists and psychologists) required to address the problems both in the theater of operations and when they return.

Fourth, a cluster of distinctive features of obvious significance for readjustment is the nature of the conflicts themselves, including especially the types of warfare experienced and the types of injuries sustained. Military personnel in Afghanistan and Iraq have been exposed to most of the circumstances and experiences of traditional combat seen in previous wars, but a signature and growing feature of the Iraq war in particular (and steadily growing in Afghanistan) is exposure to the tactics of insurgency warfare and guerilla attacks—including suicide and car bombs, IEDs, sniper fire, and rocket-propelled grenades—some of which are reminiscent of the Vietnam War. In effect, beginning with the Vietnam War, US combat engagements have increasingly evolved from engagements of "planned" violence to engagements involving more "random" and unpredictable violence, which poses continuous and unexpected threats to one's life and the terror, helplessness, and fatalism that accompany such threats and experiences. In OEF and OIF, such warfare is increasingly sophisticated and effective, with explosive mechanisms accounting for over three-fourths of the injuries observed in Iraq and Afghanistan. Survivability rates are much higher than in previous wars, but IED blasts alone often cause multiple wounds, usually with severe injuries to extremities, and traumatic brain and other blast injuries, and they leave many (most of whom would not have survived in previous wars) with serious physical, psychologic, and cognitive injuries. In conjunction with multiple and longer deployments, those factors may pose unique and sobering threats to many who serve; the relative

randomness and unexpected nature of exposure to harm (both of oneself and of others) might put one at substantially greater risk of physical, psychologic, and other effects than those in other conflicts. In turn, the numbers and types of personnel—such as physicians, psychiatrists, psychologists, and other specialists—that are required to support and treat those who serve before, during, and after deployment—will probably be substantial.

Although the last three decades have seen much improvement in the empirical documentation of postwar outcomes in military service members (and to a smaller extent in their families), there is still much work to be done. For example, Tanielian and Jaycox (2008) reviewed 22 epidemiologic studies of returnees from deployment to OEF and OIF and found that only one included clinical diagnostic assessment for PTSD and other psychiatric disorders. The other 21 studies identified "cases" solely on the basis of brief, self-report screening scales or from medical records. Although screening scales and medical records are useful for many purposes, Tanielian and Jaycox note that using either as the sole basis of estimating the prevalence of PTSD and other psychiatric disorders is fraught with challenges—a finding echoed by an earlier IOM report (2006b). More broadly, although the reported studies have built on the experiences from prior conflicts and made valuable contributions to our knowledge about mental health and other outcomes associated with deployment to a war zone, they have a set of common limitations, including

- Reliance on samples of convenience, which limits their external validity (generalizability).
- Reliance on brief screening instruments to identify cases of key outcomes and for prevalence estimates, which limits their internal validity.
- Use of cross-sectional designs, which limits their ability to support causal inference and to elucidate the course of a disorder.
- Assessment of narrow sets of risk and protective factors, which results in underspecified models with a high risk of bias.

In addition, many of the studies have been conducted by VA or DOD rather than by independent third parties, and this raises important questions about the validity of self-reports, particularly with regard to sensitive issues.

All those limitations are understandable, given the fiscal and practical challenges involved in conducting long-term outcome studies (for example, longitudinal epidemiologic studies are expensive and difficult to implement). The point, however, is that to be useful in the formulation of policy, studies need to be both scientifically sound and comprehensive.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on readjustment needs of returning OEF and OIF veterans, their families, and their communities that explicitly addresses methodologic and substantive gaps in completed and ongoing research. For example, the support of large-scale, independent studies with longitudinal designs, probability sampling, comprehensive clinical assessment of key outcomes, and more fully specified models that include objective biologic measures should be considered.

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4

PRELIMINARY FINDINGS

This chapter highlights findings related to the health consequences of service in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and readjustment needs resulting from deployment; it also examines the social consequences of deployment and the special issues faced by women and ethnic minorities; finally, it examines the need to plan for the long-term support of veterans, families, and communities affected by deployment to OEF and OIF. Inasmuch as this is the preliminary or initial phase of the committee's report, the topics discussed in this chapter are not addressed in detail. Rather, the committee is raising and exploring issues and expects to examine all the topics of concern in more detail in phase 2. Data on OEF and OIF veterans are lacking, but the committee members have examined information from studies of Vietnam veterans if they believed them to be instructive with regard to OEF and OIF veterans. The paucity of data is not surprising as studies take time to design, sample strategies need to be approved, data need to be analyzed, and the wars are ongoing. It took at least 15 years after the Vietnam War before the National Vietnam Veterans Readjustment Study began.

CONSEQUENCES OF SERVICE IN OPERATION ENDURING FREEDOM AND OPERATION IRAQI FREEDOM FOR MILITARY PERSONNEL AND THEIR FAMILIES AND EFFECTS ON READJUSTMENT

Since the beginning of the wars in Afghanistan (OEF) and Iraq (OIF), there have been 5,286 fatalities among US military service members.[1] During the same period, 36,021 have been wounded in Iraq and Afghanistan as a direct result of hostile actions; the Army has borne the brunt of the casualties (CRS, 2009). Blasts from improvised explosive devices (IEDs) have caused most of the deaths and nonfatal injuries. Injuries from blast exposure due to IEDs have resulted in numerous physical and mental health outcomes, such as traumatic brain injury (TBI), amputation, spinal-cord injury, chronic pain, headache, injury to the eye and ear, posttraumatic stress disorder (PTSD), and major depression. Military personnel exposed to multiple blasts have an increased probability of sustaining an injury that can lead to severe or long-term physical and psychologic impairments (Nelson et al., 2008). Various impairments often occur together, making treatment and readjustment more difficult. In recognition of the additional challenges faced by veterans suffering comorbid deployment-related conditions, the Department of Veterans

[1]Statistics are through November 24, 2009.

Affairs (VA) in 2005 defined polytrauma as "injury to the brain in addition to other body parts or systems resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability" (VA, 2005). Since then, its definition has been expanded to include concurrent injury to two or more body parts or systems that results in cognitive, physical, psychologic, or other psychosocial impairments (VA, 2009b).

Many military personnel returning from OEF and OIF appear to have more complex and emotional trauma than has been seen in past wars (Friedemann-Sanchez et al., 2008). That observation may be due, in part, to an improved chance of survival because of the widespread use of body armor, improved battlefield medical response, and advances in aeromedical evacuation. Polytrauma patients in particular have complex rehabilitation needs, including addressing and treating for pain, TBI, PTSD, and other comorbid conditions to facilitate readjustment (Sayer et al., 2009). Although TBI, amputations, PTSD, and major depression are distinct postcombat health outcomes, they cause overlapping long-term, possibly lifelong, effects on people's lives. People affected by those types of combat-related injuries and mental health disorders tend to report poorer health and impaired function in many life activities than people who do not suffer those types of injuries. Moreover, physical injuries and mental health disorders often require treatment by multiple health-care services for an extended period. The problem of polytrauma and the associated lifelong, recurring comorbid conditions, such as PTSD and chronic pain, requires the development of integrated approaches to clinical care that can replace traditional treatment systems that focus on isolated problems (Belanger et al., 2005; Gironda et al., 2009).

Those injuries also have the potential to affect family life even if the injured service members recover fully. For example, family members may need to relocate if the proper treatment facilities are not available close to home (Cozza et al., 2005). Injuries that result in long-term changes in behavior or abilities can seriously challenge marriages, thrusting the spouse into a caregiving role, increasing the risk of depression and other psychologic problems, and increasing the likelihood of divorce (Blais and Boisvert, 2005; Calhoun et al., 2002).

The committee has decided, in this preliminary report, to focus on the most serious health, psychologic, and social outcomes related to OEF and OIF service. Those outcomes and possible readjustment needs associated with them are discussed below.

Traumatic Brain Injury and Related Blast Injuries

Throughout OEF and OIF, explosive devices have become more powerful, their detonation systems more creative, and their additives more devastating. TBI[2] is the most common injury among those wounded in OEF and OIF and is a significant cause of mortality and morbidity. In 2003–2007, the Military Health System (MHS) recorded that 43,779 patients had a diagnosis of TBI (CRS, 2009). The estimates vary: some studies have found that about 10–20% of veterans returning from OEF and OIF have TBI (Elder and Cristian, 2009; Tanielian and Jaycox, 2008), and others have found that TBI accounts for up to one-third of all battlefield injuries (Meyer et al., 2008). Although penetrating brain injuries are easily identified, closed TBI is more common and, when mild, can go unnoticed. A concern for troops, veterans, and their

[2]Brain injuries may be categorized as mild, moderate, or severe (see Silver et al., 2005); the Defense and Veterans Brain Injury Center in collaboration with the Armed Forces Health Surveillance Center publishes the annual incidence of brain injury by severity and by branch of military (DOD, 2009).

family members is that substantial long-term effects have been associated with TBI (IOM, 2009). In some cases a TBI can go undetected until the service member returns home and can no longer function as he or she did before deployment; this can result in frustration and problems for both service member and family alike (Zeitzer and Brooks, 2008). A recent Institute of Medicine (IOM) report (2009) noted that numerous adverse long-term outcomes are related to TBI. Although some acute outcomes, such as some neurocognitive and psychosocial dysfunction, resolve or lessen over time, other sequelae, such as psychiatric outcomes, become more apparent several years after injury. Many studies have found a dose–response relationship with regard to TBI severity and outcome: generally, the more severe the TBI, the more severe the outcome. However, the IOM report identified several outcomes that can persist even after mild TBI, including unprovoked seizures, depression, aggression, and postconcussive symptoms, such as memory problems, dizziness, and irritability. TBI can cause life-long impairments, and rehabilitation and recovery might take many years.

One common complication of TBI is pain (Nampiaparampil, 2008), particularly headache, and there is growing evidence that it can be a long-term problem (Gironda et al., 2009). A study of OEF and OIF veterans diagnosed with TBI found that those with neurocognitive impairments were more likely to have headache, migraine-like headache, more severe pain, and more frequent headache than veterans without neurocognitive impairment (Ruff et al., 2008). Similarly, a recent study (Theeler and Erickson, 2009) found an association between a history of mild head trauma, usually caused by blast exposure, and onset or worsening of headache in combat troops; it was also noted that the soldiers diagnosed with TBI usually experienced migraine-type headaches.

There is clear evidence of increased mortality in the acute phase after moderate to severe TBI and for some time following in both military and civilian populations (Baguley et al., 2000; Brown et al., 2004; Corkin et al., 1984; Harrison-Felix et al., 2004; Lewin et al., 1979; Ratcliff et al., 2005; Rish et al., 1983; Selassie et al., 2005; Shavelle and Strauss, 2000; Walker et al., 1971; Weiss et al., 1982). In the military literature, posttraumatic epilepsy in patients who initially survive penetrating head injury is associated with an increased risk of death and about a 5-year decrease in life expectancy (Corkin et al., 1984; Walker et al., 1971; Weiss et al., 1982). Studies of the subset of more severely injured patients who survive initial hospitalization and require inpatient rehabilitation have shown a worse prognosis that is consistent with the greater degree of residual compromise: mortality some 2–7 times as high as that in age- and sex-matched comparison populations (Brown et al., 2004; Harrison-Felix et al., 2004; Ratcliff et al., 2005; Selassie et al., 2005).

TBI can also lead to disruptions in higher-level functions of everyday life, including social relationships, independent living, and employment. Numerous studies have documented that penetrating brain injuries have adverse consequences for long-term employment outcomes (Dikmen et al., 1994; Doctor et al., 2005; McLeod et al., 2004; Schwab et al., 1993). Moreover, although some impairments might be related to injuries to other parts of the body sustained at the time of TBI, moderate to severe TBI leads to more functional impairment than do injuries to other parts of the body alone (Dikmen et al., 1995; Gerberich et al., 1997; McLeod et al., 2004; Oddy et al., 1978; Ommaya, 1996). The adverse effects of TBI on leisure and recreation, social relationships, functional status, quality of life, and independent living clearly affect readjustment and family life and relationships. By one year after injury, psychosocial problems appear to be greater than problems in basic activities of daily living (IOM, 2009).

Most long-term outcomes of TBI were observed at or soon after the time of injury and persisted, presumably indefinitely. However, other outcomes were observed to develop later, possibly as a result of an interaction with aging processes. Conditions found, in at least some studies, to emerge or re-emerge in later life included cognitive deficits (e.g., Corkin et al., 1989), depression (e.g., Holsinger et al., 2002), suicide (e.g., Teasdale and Engberg, 2001), premature death (e.g., Harrison-Felix et al., 2004), progressive dementia (e.g., Plassman et al., 2000), and parkinsonism (e.g., Bower et al., 2003).

Posttraumatic Stress Disorder and Traumatic Brain Injury

PTSD (discussed in more detail below) can co-occur with TBI (Hill et al., 2009; IOM, 2008b). It has been noted that physical trauma and psychologic trauma reported by OEF and OIF service members and veterans rarely appear in isolation and often present with more than one medical condition simultaneously (that is, they are comorbid) (Lew et al., 2009). Although the data on rates of comorbidity in the OEF and OIF population are sparse, research in civilians suggests that those with co-occurring mental and physical problems typically require more specialized treatment and have poorer outcomes than those with a single condition only (Shalev et al., 1998). A recent RAND report (Tanielian and Jaycox, 2008) estimated that some combination of comorbid PTSD, major depression, and TBI is not uncommon in OEF and OIF veterans. The report noted that about one-third of service members who have been deployed have at least one of the three conditions, and about 5% manifest symptoms of all three (Tanielian and Jaycox, 2008). Furthermore, of 289,328 OEF and OIF veterans seen at VA health care facilities following deployment, 106,726 (36.9%) received mental health diagnoses and of those receiving any such diagnosis, 29% had two and 33% had 3 or more different mental health conditions (Seal et al., 2009). Of those veterans, 62,929 (21.8%) were diagnosed with PTSD and 50,432 (17.4%) with depression.

Hoge and Castro (2006) found that the prevalence of PTSD in soldiers who had physical injuries was 31.8%. In a more recent study of over 2,000 postdeployment active-duty service members, those who reported loss of consciousness had the highest rate of PTSD, 43.9%; the rate of PTSD was 27.3% in those who had altered mental status but no loss of consciousness, 16.2% in those who had only physical injuries, and 9.1% in those who reported no injury (Hoge et al., 2008). Moreover, mild TBI accompanied by symptoms of PTSD and other mental problems (Schneiderman et al., 2008) was more common in blast-injured patients than in those who had non-blast-related injuries. In a study of National Guard troops returning from the Gulf War, most of the PTSD reported at 2 years was present at 6 months after deployment, but symptom severity increased over the interval. Those who were highly symptomatic at 6 months were still highly symptomatic 2 years later (Southwick et al., 1995).

Auditory and Visual Impairment

Tympanic membrane perforation is a blast injury that occurs in about 10% of those wounded by combat-related explosions (Ritenour et al., 2008). In many cases, hearing loss accompanies TBI. Lew et al. (2007a) reported on the prevalence and characteristics of auditory dysfunction in patients admitted to a VA TBI inpatient unit before and after the start of OEF. Their findings indicated a high prevalence of hearing loss and tinnitus in a growing population of returning service members. Inasmuch as effective communication is needed for successful

rehabilitation, especially in patients who have comorbid TBI, clinically significant hearing loss presents problems for readjustment.

In addition to chronic pain, headaches, and hearing loss, ocular trauma is a direct consequence of blast injury and TBI. Combat troops who are exposed to a blast that results in mild TBI are at risk for visual dysfunction, and combat troops who have polytrauma are at risk for visual dysfunction and impairment (Brahm et al., 2009). It has been noted that TBI occurs in 67% of cases of combat ocular trauma, and that ocular trauma is a common finding in TBI cases (Weichel et al., 2009). Those outcomes, in addition to numerous long-term outcomes associated with TBI (discussed above), indicate that planning is needed for addressing injured service members' long-term psychologic, psychosocial, and medical needs.

Polytrauma

As noted earlier, OEF and OIF active-duty military personnel are experiencing higher survival rates than in previous wars. The overall survival rate among wounded troops is about 90%; increased survival rates are attributed to the widespread use of body armor and improved battlefield procedures and medical evacuation (CBO, 2007b). However, the protection offered by body armor has probably resulted in more veterans surviving injuries that in past conflicts would have led to polytrauma and death, but which now result in immediate or later amputations. As reported by the Army Office of the Surgeon General, from September 2001 to January 12, 2009, there were 1,184 amputations in personnel deployed to OIF and OEF, nearly three-quarters of which were major amputations (CRS, 2009). IEDs caused 55% of the 1,184 OIF and OEF amputations. Of the 1,184 amputations, 77% were in the Army, 19% in the Marines, 2% in the Air Force, and 2% in the Navy (CRS, 2009). OIF and OEF amputees typically receive care at Landstuhl Regional Medical Center in Germany and are then sent to Walter Reed Army Medical Center, where they may stay for several months. Amputees often experience acute and chronic pain, including phantom limb and residual limb or stump pain (Ketz, 2008). They may also face long-term psychologic problems (Ebrahimzadeh and Rajabi, 2007). Ebrahimzadeh and Hariri (2009) reported that 54% of amputees having persistent functional, social, and psychiatric problems, yet only 26% of patients were receiving psychologic treatment.

Another common problem reported by returning service members that co-occurs with other injuries is chronic pain (Clark et al., 2007; Gironda et al., 2006; Lew et al., 2007b), itself a leading cause of disability in the civilian population (Stewart et al., 2003). In a study of 100 OEF and OIF veterans, about 47% reported at least mild pain, and 28% reported moderate to severe pain; among the 67 veterans with chronic pain conditions, 82% had a documented diagnosis of musculoskeletal or connective tissue disorders (Gironda et al., 2006). Moreover, pain is known to be associated with a high prevalence of mental health disorders, including PTSD (Otis et al., 2009). A more recent study of 429 OEF and OIF veterans (Helmer et al., 2009) found that more severe chronic pain, PTSD, and depression adversely affected veterans' ability to perform daily activities and so made readjustment for the veterans and their family members more difficult.

In a recent review, pain from polytrauma was found to pose numerous challenges during and after rehabilitation treatment (Dobscha et al., 2009). Patients who present with both pain and mental health disorders may have more functional impairment than those with single conditions. Studies of patients treated for both pain and the mental health disorder do not consistently show improvement when the mental health disorder is treated alone; this suggests that both conditions

need to be addressed (Otis et al., 2009). Assessment and intervention efforts are further complicated when the injuries include TBI. Factors associated with worse outcomes include multiplicity of injuries, head injury or cognitive disability, and lower-limb injuries.

Research and program development are needed to substantiate the potential efficacy and cost effectiveness of developing protocols for the long-term management of TBI and polytrauma. The array of potential health outcomes associated with TBI suggests that injured service members will have long-term psychosocial and medical needs from both persistent deficits and problems that develop in later life. Access to rehabilitation therapies—including psychologic, social, and vocational—is required initially with the onset of deficits and will persist over time as personal and environmental factors change, leading to loss of functional abilities. VA has put into place a comprehensive system of rehabilitation services for polytrauma, including TBI (see Chapter 5), that addresses acute and chronic needs that arise in the initial months and years after injury. However, protocols to manage the lifetime effects of TBI are not in place and have not been studied for either military or civilian populations. As in other chronic health conditions, long-term management for TBI may be effective in reducing mortality, morbidity, and associated costs.

The committee recommends that the Department of Veterans Affairs conduct research to determine the potential efficacy and cost effectiveness of developing protocols for the long-term management of service members who have polytrauma and traumatic brain injury. The approaches considered should include

- **Prospective clinical surveillance to allow early detection and intervention for health complications.**
- **Protocols for preventive interventions that target high-incidence or high-risk complications.**
- **Protocols for training in self-management aimed at improving health and well-being.**
- **Access to medical care to treat complications.**
- **Access to rehabilitation services to optimize functional abilities.**

Mental Health Disorders

High rates of service-related mental health disorders among military personnel and veterans who have deployed to OEF and OIF have been reported (Erbes et al., 2007; Hoge et al., 2004, 2006; Kolkow et al., 2007; Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2006a, 2006b, 2008; Seal et al., 2007; Sundin et al., 2010; Tanielian and Jaycox, 2008; US Army Surgeon General, 2003, 2005), and the prevalence of those disorders will grow as the conflicts continue. Frequently diagnosed psychiatric disorders include mood disorders, such as depression, and anxiety disorders, such as PTSD, panic disorder, and generalized anxiety disorder. An increased risk of substance-use disorders (alcohol and drug abuse and dependence) and suicides often co-occurs with those mental disorders. This section describes the disorders, their reported prevalence in the OEF and

OIF military and veteran populations, and the readjustment challenges faced by people who have these disorders.

Major Depression

Major depression is the most common mood disorder reported in civilian populations; it is characterized by persistent feelings of sadness accompanied by several symptoms related to changes in appetite or sleeping patterns, loss of interest in activities, fatigue, inability to concentrate, and hopelessness or suicidal thoughts. A 2008 RAND report (Tanielian and Jaycox, 2008) reviewed 12 studies that assessed the prevalence of depression in active-duty service members who served in OEF and OIF. None of the studies used a diagnostic instrument to diagnose depression, and findings were based on self-report symptom measures only. However, on the basis of the prevalence estimates, major depression in active-duty service members ranged from 5% (Hoge et al., 2006; Kolkow et al., 2007; US Army Surgeon General, 2005) to 37% (Lapierre et al., 2007).

Depression is associated with a decrease in quality of life. The World Health Organization projects that it will be the second-most common contributor to disability worldwide in 2020; it is already the second-most common contributor to disability in people 15–44 years old in both sexes combined (WHO, 2010). In the general population, about 80% of persons who had depression reported some difficulty in daily functioning because of their symptoms (Pratt and Brody, 2008). In more severe cases, persons who had a lifetime history of major depression were 10 times as likely to report having thought about killing themselves (OR 9.6, 95% CI 7.5-12.3), 11 times as likely to have made a nonfatal suicide attempt (OR 11.0, 95% CI 7.1-20.3) (Kessler et al., 1999), and almost 4 times as likely to meet alcohol-dependence criteria (OR 3.7, 95% CI 3.1-4.4) (Grant et al., 2004). In military populations, those who had depression were less likely to be employed than those who did not (Savoca and Rosenheck, 2000). Vietnam veterans who had depression also had 45% lower hourly wages than veterans who did not (Savoca and Rosenheck, 2000). Similarly, Vietnam veterans who had depression tended to report more marital and family conflict, including domestic violence, than those who did not. In a survey of 11,870 white men randomly sampled from Army bases between 1989 and 1992, presence of depressive symptoms was positively associated with the presence and severity of domestic violence (Pan et al., 1994). The investigators found that for each 20% increase in depressive symptoms, there was a 74% increase in the likelihood of husband-to-wife aggression.

Posttraumatic Stress Disorder

PTSD is a commonly diagnosed mental health disorder in OEF and OIF service members. It can develop after the direct, personal experience or witnessing of an event that poses a perceived threat of death or serious injury. The risk of developing PTSD is also higher among those who have suffered pre-service trauma, such as childhood sexual abuse or physical abuse (Tolin and Foa, 2006). Symptoms that characterize PTSD arise in the aftermath of a traumatic exposure and include re-experiencing of the traumatic event through flashbacks and nightmares; avoidance of people, places, and situations associated with the trauma; and hyperarousal (difficulty in sleeping and in concentrating and exaggerated startle) (IOM, 2006). The *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition (DSM-IV), which is considered the gold standard for psychiatric diagnoses in the United States, recognizes that the onset of PTSD may be acute, beginning within 6 months of exposure to the traumatic event, or delayed, beginning 6

months or more after the traumatic event. Symptoms typically begin shortly after exposure—even on the first day (North et al., 1999). PTSD can be diagnosed only if symptoms persist for at least a month; similar symptoms that last less than a month are diagnosable as acute stress disorder. The latency period between exposure and development of symptoms that meet the diagnostic criteria is variable; it may be years before the symptoms become fully manifest (Bremner et al., 1996; Bryant and Harvey, 2002; Carty et al., 2006; Gray et al., 2004; Green et al., 1990; Op Den Velde et al., 1996; Port et al., 2001; Ruzich et al., 2005). Moreover, PTSD is considered to be chronic by DSM-IV-TR (DSM-IV Text Revision) criteria if symptoms persist for 3 months or longer. PTSD also can be chronic with no remission, or it can be recurrent with periods of remission and recurrence (Friedman, 2003).

In US troops deployed to Afghanistan and Iraq, symptoms of PTSD are most commonly reported after deployment. Service members who experience combat exposure and those who are wounded are at higher risk for PTSD. The Department of Defense (DOD) conducted a mental health survey of Army soldiers and marines deployed to Iraq in 2003, 2004, and 2006. In 2003, 16% of the soldiers and marines met the screening criteria (not necessarily DSM diagnosis) for PTSD while deployed; in 2004, 14% met the screening criteria; and in 2006, 17% of soldiers and 14% of marines met the screening criteria (Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2006b). Moreover, the risk of PTSD symptoms 3–4 months after deployment was 6.2% in Army troops returning from Afghanistan and 12.9% in Army soldiers and 12.2% in marines returning from Iraq (Hoge et al., 2004). Since September 2001, the MHS has recorded positive screening results for PTSD in 39,365 service members. According to CRS (2009), the MHS has spent $63.8 million on care and $13.1 million on prescription drugs for treating those with PTSD symptoms.

In a RAND study of OEF and OIF veterans, 18.5% reported depression or PTSD (Tanielian and Jaycox, 2008), slightly higher than the prevalence found in its review of 22 other studies, which showed that 5–15% of veterans experienced PTSD symptoms when deployed to war zones. The study also suggested that prevalence of PTSD symptoms increases with time after deployment (the readjustment period) (Tanielian and Jaycox, 2008).

Studies of US service members deployed to war zones have used self-report screening instruments rather than structured diagnostic interviews conducted by mental health professionals to diagnose mental health conditions. According to the RAND report (Tanielian and Jaycox, 2008), due to methodologic differences in outcome measurement, the extant studies may have underestimated the prevalence of PTSD and depression in their postdeployment samples. Most studies also used convenience samples, which may not be representative of the entire force deployed to war zones. In addition, inasmuch as OEF and OIF are ongoing, the risks may yet change. For example, service members deployed to Iraq earlier in the conflict were at higher risk for PTSD than those deployed to Afghanistan, but recent changes in military focus in the two theaters might reverse that pattern.

PTSD can interfere with functioning and quality of life. There is considerable evidence that symptoms of combat-related trauma and posttraumatic stress are inversely associated with service members' relationship quality and stability. For example, 30 years after their military service, 10% of the Vietnam veterans in a community sample reported they still had severe PTSD symptoms, and those 10% reported less satisfaction with their marriages and sex lives and more difficulties with parenting. Veterans with more severe PTSD symptoms were more likely to have been divorced, and veterans who had reported severe symptoms 15 years earlier had

become even less satisfied with their marriages and lives (Koenen et al., 2008). Cook et al. (2004) found similar relationship disruptions 50 years after World War II in a sample of US prisoners of war. In marriage, emotional numbing has been associated with loss of intimacy (Cook et al., 2004; Galovski and Lyons, 2004; Solomon et al., 2008). The PSTD arousal symptom cluster[3] seems to promote veterans' expressions of anger (Beckham et al., 2000) and violence toward their partners (Marshall et al., 2005; Solomon et al., 2008).

There is evidence that PTSD disrupts functioning in relationships with children. Fathers who have PTSD have been characterized as withdrawn, irritable, and controlling (Dekel and Goldblatt, 2008; Galovski and Lyons, 2004). In a study of 66 male Vietnam veterans who had combat-related PTSD, emotional numbing was more strongly related than other symptoms to aspects of the parent–child relationship, including positive sharing, contact, and overall quality (Ruscio et al., 2002).

A recent study focused on 199 military veterans who served in Iraq or Afghanistan after 2001 and who were referred to military behavioral health clinicians from primary care (Sayers et al., 2009). Veterans who had depression or PTSD were five times as likely to report problems with family readjustment as those who did not, including feeling like guests in their own homes and reporting that their children acted afraid or without warmth toward them. Almost one-third of the veterans reported that their partners were afraid of them.

In a study of PTSD in civilians, Breslau (2001) found that when symptoms were most severe, about 25% of both men and women in a population of young adults felt that they were unable to work during the entire 30-day period during which they experienced the symptoms. When inability to work was added to reports of reduced activity, almost 39% of the 20 men and 44% of the 44 women reported that they were unable to do their jobs or had to reduce their activities. When young people who had a diagnosis of PTSD, other psychiatric diagnoses, or no psychiatric diagnosis were compared, those who had PTSD were twice as likely to limit their activities as those who were diagnosed with other psychiatric disorders and four times as likely as those who had no diagnosis.

Adding to the mental health readjustment challenges of OEF and OIF service members and veterans is the shortage of mental health–care professionals being reported by the military and mass media. The committee's own preliminary review found that the mental health services available to OEF and OIF service members and veterans are poorly distributed. For example, a shortage of mental health–care professionals, at least in some geographic areas (especially less-populated areas), has been reported. Feedback from health-care providers in the field showed concerns that at some army installations and VA hospitals, the mental health–care personnel are overwhelmed by the number of soldiers and veterans who seek treatment. Anecdotal evidence suggests that in some locations service members and veterans have long wait times or must travel long distances to see mental health providers.

In connection with the heavier case loads, there have been reports that facilities in remote areas are finding it difficult to recruit and retain highly qualified providers. The committee heard from providers—especially at the town hall meeting held in Killeen, Texas, near Fort Hood—who stated that it is difficult to retain mental health clinicians because they can be better

[3]The arousal symptom cluster includes the symptoms listed under part D of the PTSD criteria (309.81) in DSM-IV: sleeping difficulty, irritability and angry outbursts, difficulty concentrating, hypervigilence, and exaggerated startle response.

compensated in private practice (see Appendix B). They also noted that it is difficult to recruit qualified clinicians to remote areas because the clinicians have other opportunities to work and live in more attractive communities.

Suicide

Suicidal behavior is one of the most serious consequences of mental disorders. It is the 11th-most common cause of death in the United States (NIMH, 2009). In the Western world, women attempt suicide three times as frequently as men, but men are four times as likely to die from suicide as women because of the methods used (for example, men use firearms) (CDC, 2009).

A number of studies have assessed the association between combat exposure and suicide; the results have been inconsistent. In a study of Vietnam veterans, an increased risk of attempting suicide was observed during the early followup period (CDC, 1987), but the increase in risk did not persist in a 30-year followup of the cohort (Boehmer et al., 2004). In another study, veterans who had PTSD continued to have an increased risk of committing suicide 30 years after service (Boscarino, 2006); this suggests that those who have PTSD may be particularly vulnerable. In a prospective followup study of over 320,000 men, veterans were twice as likely to die of suicide as nonveterans in the general population (Kaplan et al., 2007).

Because of the high rates of mental disorders in service members returning from Afghanistan and Iraq, there are concerns about elevated rates of suicide. According to DOD, the rate of suicide in the military in 2003 was comparable with the rate across all ages of the general US population (about 10 per 100,000) (Allen et al., 2005). Since then, the Army has reported a record of over 140 suicides in active-duty soldiers in 2008; in November 2009, the Army released data suggesting that suicides in 2009 could exceed that number. In January–October 2009, there were 133 reported suicides (90 confirmed and 43 pending); in the same period in 2008, there were 115 confirmed suicides in active-duty soldiers (Department of the Army, 2009). Those figures do not take into account the other branches of the US military, and it is not possible to determine whether the rate of suicide in all military personnel has increased. However, some data suggest that there are especially vulnerable groups, notably veterans who served in the active component and veterans who have mental disorders (Kang and Bullman, 2008).

More people fail at suicide attempts than are successful. Those who fail at suicide attempts often injure themselves seriously and require medical care. The total lifetime cost of self-inflicted injuries among the general US population in 2000 was about $33 billion, of which $1 billion was for medical care and $32 billion for lost productivity (Corso et al., 2007). In addition, those who attempt suicide often suffer from depression and other mental disorders and are at increased risk for attempting it again.

Little research has been conducted to examine the consequences of suicide on family members. That lack of data is not limited to the consequences of suicide on the family and social networks, but also extends to the military unit. Those left behind have been found to be at risk for complicated grief reactions, mental disorders, and even suicide. A study by Farberow et al. (1992) found that spouses bereaved because of deaths from natural causes appeared less distressed 6 months after their spouse's death than those whose spouses died of suicide. The study reported higher levels of grief and depression after the first year, and found that spouses

bereaved because of deaths from natural causes reported receiving more emotional support than those whose spouses committed suicide. Many feel guilt and blame themselves for their perceived failure to prevent the suicide (Reynolds and Cimbolic, 1988). In addition, survivors are judged more severely by society than those who suffer other types of loss (Range, 1998; Stillion, 1996).

The committee heard repeatedly that there is a critical shortage of health-care professionals—especially those specializing in mental health—to meet the demands of people returning from theater in Iraq and Afghanistan and their family members. The psychologists, psychiatrists, social workers, and other mental health professionals who do serve the military and veteran communities have large caseloads (especially in some locations), and this results in underserved patients and high rates of burnout and turnover. The committee is aware that DOD is taking steps to meet the mental health care needs of its service members, but more remains to be done.

The committee recommends that the Department of Defense and the Department of Veterans Affairs quantify the number and distribution of mental health professionals needed to provide treatment to the full population of returning service members, veterans, and their families who suffer from mental health disorders, such as PTSD, major depression, and substance abuse, so that they can readjust to life outside of theater. The committee also recommends that the Department of Defense and the Department of Veterans Affairs continue to implement programs for the recruitment and retention of mental health professionals, particularly to serve those in hard-to-reach areas.

Substance-Use Disorders

DSM-IV defines substance-use disorders as dependence[4] on or abuse[5] of drugs or alcohol. The disorders are often comorbid with depression and PTSD. A recent IOM report determined that there is evidence of an association between deployment to a war zone and alcohol and drug abuse and dependence (IOM, 2008a); however, there are no data available on drug abuse in OEF and OIF active duty and veterans. That lack of data is not surprising, inasmuch as active-duty soldiers who abuse drugs are at risk for dishonorable discharge. Thus, many studies do not collect data on substance abuse. Initial surveys, however, have suggested that problems with substance abuse and dependence, particularly alcohol abuse and dependence, in OEF and OIF veterans are being reported when they return (Hoge et al., 2004; Jacobson et al., 2008; Lande et al., 2008; Stahre et al., 2009). A recent study found that 43% of active-duty service members reported binge drinking[6] in the preceding month (Stahre et al., 2009). Another study of three Army units and one Marine Corps unit found that deployment to Iraq or Afghanistan was associated with higher prevalence of alcohol misuse compared to predeployment prevalence (Hoge et al., 2004). In a study of reserve and National Guard personnel, those who were deployed to Iraq or Afghanistan and reported combat exposure were

[4]Dependence is characterized by tolerance, withdrawal, need for increasing amounts, persistent desire, and unsuccessful efforts to reduce use of a substance.
[5]Abuse is characterized by recurrent use of a substance to the point where it causes domestic, occupational, interpersonal, or legal problems or use in physically hazardous situations.
[6]The study defined binge drinking as consuming more than four drinks for men and more than three drinks for women during a single event.

at increased risk for new-onset heavy weekly drinking, binge drinking,[7] and other alcohol-related outcomes (Jacobson et al., 2008).

Alcohol-related problems are reported frequently in veterans. A recent study by Seal et al. (2009) found a prevalence of alcohol-use disorder of 7.1%, which appears to be similar to that in the general population. In the United States, about 1 in 12 adults abuses or is dependent on alcohol; alcohol problems are most prevalent among in adults 18–29 years old (NIAAA, 2007). However, in a study of 1,508 OEF and OIF veterans (Calhoun et al., 2008), 40% screened positive for alcohol abuse, alcohol dependence, or harmful alcohol use; binge drinking was common (23%). Only 31% of those who were abusing alcohol reported that a VA provider had advised them to drink less (Calhoun et al., 2008).

Using data from the Millennium Cohort Study, researchers found that reserve and National Guard personnel who experienced combat exposure were significantly more likely to engage in new-onset heavy weekly drinking or experience alcohol-related problems than nondeployed personnel (Jacobson et al., 2008). The youngest members of the cohort were at highest risk for all alcohol-related outcomes. Baseline prevalences of heavy weekly drinking, binge drinking, and alcohol-related problems[8] in reserve or National Guard personnel who deployed and were exposed to combat were 9.0%, 53.6%, and 15.2%, respectively; followup prevalence was 12.5%, 53.0%, and 11.9%.

The medical and nonmedical complications of alcoholism and alcohol abuse are well known. Excessive alcohol use has been associated with liver disorders, cardiovascular problems, neurologic conditions, and some kinds of cancer. Each year, 85,000 Americans die of alcohol-related causes, and nearly half of all traffic deaths are linked to alcohol (Mayo Clinic, 2008). In addition, excessive alcohol use is associated with a higher incidence of suicide or homicide, domestic abuse, and poor performance at work.

On the basis of responses from Millennium Cohort Study participants who submitted baseline data before deployment to Iraq or Afghanistan and upon return (n = 48,304), military deployment was associated with smoking initiation and more strongly with smoking recidivism, especially among those who had prolonged deployments, multiple deployments, or combat exposure (Smith et al., 2008). Those who were deployed and reported combat exposure were at 1.6 times greater odds of initiating smoking among baseline never-smokers and at about 25% greater odds of resuming smoking among baseline past smokers compared with those who did not report combat exposure.

No data on drug abuse in OIF and OEF veterans were available. The experience of past conflicts indicates that drug abuse and dependence will be problems where opiates are readily available, but there is no evidence at this time to indicate a serious problem with illicit drugs in OEF and OIF. That is not surprising, given that active-duty soldiers who abuse drugs are at risk

[7]Binge drinking was defined as consuming six or more drinks on at least one occasion in at least one month of the preceding year.

[8]Heavy weekly drinking was defined as more than 14 drinks per week for men and more than seven per week for women, binge drinking was defined as drinking at least five alcoholic beverages (four for women) on one occasion during the preceding year, and alcohol-related problems were defined as at least two occurrences in the preceding year in which the respondent consumed alcohol against a doctor's recommendation, drove while intoxicated, or could not properly carry out responsibilities or get along with other people due to alcohol use.

for dishonorable discharge. In light of the latter, many studies do not collect data on substance abuse (Charles Engel, personal communication, August 11, 2009).

The committee recommends that the Department of Defense actively promote an environment to reduce stigma and encourage treatment for mental health and substance-use disorders in an effort to improve military readiness and ability to serve. The committee also recommends that the Department of Defense undertake a systematic review of its policies regarding mental health and substance-abuse treatment with regard to issues of confidentiality and the relation between treatment-seeking and military advancement.

DEPLOYMENT

In addition to the stress of caring for or coping with a family member who has been injured (physically or psychologically) in combat, military families face unique stressors that can complicate readjustment. Those challenges are not shared by civilian families, such as repeated family relocations (both domestic and international) and deployment—periodic and extended separation of service members from their families—and the fear of the service member's injury or death (Burrell et al., 2006; Reinkober Drummet et al., 2003).

About one-third of military families are relocated each year (Orthner and Rose, 2002), with the result that the average military family moves every 2–3 years (DOD, 1998; GAO, 2001). Historically, the military has moved its personnel to different installations and types of units to ensure that service members acquire the repertoire of specialized skills and training necessary for both their career advancement and the fulfillment of the military's mission. The moves require families to leave the communities in which they are embedded (such as neighborhoods, schools, friends, places of worship, and work) and to rebuild their support networks in a new part of the country. Families' adjustment includes cultural adaptation in the case of international relocations, the rates of which are four times higher for military families than for the civilian population (Reinkober Drummet et al., 2003).

Unlike civilian life, in which there is often some control or choice over relocation decisions, the military affords none. Frequent obligatory moves are associated with frustration and decreased satisfaction with military life (GAO, 2001); however, the norms and values of the military dictate that families adapt. In addition to the emotional upheaval involved, frequent relocations tend to disrupt the spouse's ability to achieve educational or career goals (Eby et al., 1997; Harrell et al., 2004). That disruption is reinforced by the likelihood that the spouse, who is most commonly female, has to bear primary responsibility for child care and household management in the family (Defense Department Advisory Committee on Women in the Services, 2008). Adult children of military parents report geographic mobility as the most trying aspect of growing up in the service (Ender, 2000; Lincoln et al., 2008).

The remainder of this section focuses on the adverse effects of deployment on military families, military spouses, and children. It also discusses the effects of deployment on a host of social issues, including education and employment; income, earnings, and wages; and such adverse outcomes as debt, homelessness, incarceration, crime, and risky driving. In many cases, data on those issues have not yet been studied or clarified for OEF and OIF veterans, so the committee often relied on information from studies of Vietnam veterans or veterans of other

wars if it believed such information to be instructive in addressing the needs of current active-duty and veteran populations. In many instances, the current economic environment will influence the outcome of many of the issues discussed below.

Deployment and Military Families

Many men and women who return from the war zone adjust to their lives out of theater successfully; others have difficulty in adjusting or transitioning to family life, to their jobs, and to living in their communities. Families are stressed by routine physical separations from service members and profoundly so by soldiers' deployments to active combat zones. Deployment lengths, once relatively predictable, are more uncertain because of the acceleration of conflicts in Afghanistan and Iraq and a heightened likelihood of extensions (Lincoln et al., 2008). Families must cope with the ever-present risk of injury or death. Longer deployments are particularly taxing for families' well-being; data suggest that families experience greater stress and anticipate more difficulties when deployments extend beyond 6 months (Booth et al., 2007; Orthner, 2002).

Before deployment, families must prepare legally, logistically, and emotionally for separation and the possible death of their service member (McCarroll et al., 2005). McCreary et al. (2003) surveyed 180 members of the Canadian military 48 hours before departure for a peacekeeping mission in Bosnia and found that family self-reports of concerns explained more than half the variability in measures of depression, hyper-alertness, anxiety, and somatic complaints. Findings from a study by Kelley et al. (2001) also suggest that Navy mothers and fathers anticipating deployment suffer from separation anxiety; anxiety is greatest in servicewomen who have children or are single mothers.

During deployment, family members report experiencing psychologic stress and logistical challenges in caring for children and households (SteelFisher et al., 2008). Some spouses (30–50%) relocate during deployment; this increases proximity to extended family members but means leaving local military services and causing children to change schools and living arrangements (Flake et al., 2009). There may be economic challenges, such as loss of employment or difficulty in paying for child care or other household services usually provided by the deployed family member. Reserve-component members may lose income during deployment, although on the average they experience small income increases (Angrist and Johnson, 2000). Reserve-component families also may be required to switch medical providers during deployment if their primary health-insurance coverage moves to the military system.

Steelfisher and colleagues (2008) conducted telephone interviews in January and February 2004 with 744 Army spouses affiliated with units that were deployed early in the current conflict. Some of the spouses had experienced an unexpected extension of their partners' deployment. The most common adverse effects of deployment on well-being were self-reported loneliness (78.2%), anxiety (51.6%), and depression (42.6%). Reported problems with overall health and perceived effects on jobs were more prevalent—21% and 18%, respectively—than financial problems or problems with relationships—12% and 4–10%, respectively; 9.9% of respondents reported problems with their marriages. Among deployment-induced problems in daily life, difficulty in communication (sent and received) with the deployed member was the most common (41.0%). Additional problems reported were problems with household and car maintenance (29.0%), fears about personal safety (23.6%), and problems finding child care (16.2%). A notable minority of the sample reported adverse perceptions of the military, the most

commonly cited problem being lack of accurate information surrounding the timing of deployment (48.4%). Those experiencing a deployment extension were more likely to report problems with work and were more likely to have scaled back or left work; they were also more likely to report problems in their marriages than spouses who did not experience a deployment extension.

During deployment, children and spouses of deployed service members have been found to experience increased self-reported levels of symptoms of depression. The families also report significantly more intervening stressors in the past year than families of nondeployed personnel (Jensen et al., 1996). Younger children and boys of deployed parents appear to have heightened vulnerability to maladjustment (Blount et al., 1992; Jensen et al., 1996). In a study of how adolescents cope with the uncertainty and "ambiguous loss" inherent in parental deployment, Huebner et al. (2007) found that adolescents tend to have increased awareness of the risks associated with parental deployment and to experience behavioral difficulties and symptoms of anxiety and depression.

Most studies conducted after return from deployment focus on the consequences of symptoms of posttraumatic stress in service members and their families; few studies focus on the normative course of reintegration. However, apart from the eventual transition out of the military, perhaps the most challenging transition for military families is the return home from deployment. Most military families adapt to the deployment by taking on additional roles and responsibilities; however, such adaptation can create tension during the immediate postdeployment stage. The service member and family may struggle to adjust to a vastly different lifestyle, reconnect with a different social support structure (for example, the spouse and children as opposed to the military unit), and perhaps return to a very different job if they are reserve or National Guard members. One longitudinal study of reintegration during OIF (Faber et al., 2008) reported that couples in a sample of reservists were preoccupied with relational communication and expectations, especially regarding independence, roles, and responsibilities. The transition from soldier to civilian was more difficult for service members whose return to the civilian workforce did not go smoothly.

Some of those challenges may include readjusting to partners who have assumed new roles during the separation period, coping with the loss of independence gained during the deployment, negotiating needs for personal space and family routines, re-establishing family roles, readjusting to children who have matured and may resent additional oversight, re-establishing bonds with spouses and children, and managing the long-term health problems that are common after deployment (American Psychological Association Presidential Task Force on Military Deployment Services for Youth, Families, and Servicemembers, 2007; Slone et al., 2009). Bowling and Sherman (2008) suggested that both service members and their family members cope with the stresses of deployment by suppressing their emotional responses and that this can impede processes of reconnecting with one another after return. During the current conflicts, the prospect of possible future deployments, and the resultant separation, makes the re-establishment of intimate relationships even more challenging.

As mentioned elsewhere in this report, the demands of the current conflicts have made compliance with DOD's rotational policies (for example, maximum length of deployments and minimum length of dwell time between deployments) difficult. All the hardships noted in this chapter may be exacerbated by the number and frequency of repeat tours, which necessitate repeated transitions from life in theater to life after combat. A frequent need to adapt and readapt

creates more challenges for service members and their families. An extra stage in the process of returning from deployment, known as third-location decompression, has been used by other militaries to ease the stress of such transitions (Hughes et al., 2008). The goal of third-location decompression is to provide service members rotating off deployment with a period of decompression in a third location: a time in which they can be with their comrades and peers in a restful situation and prepare themselves for going back to their families and communities (National Defence and Canadian Forces Ombudsman, 2004). Little research has been conducted to evaluate whether service members who undergo third-location decompression have better outcomes than those who do not, but findings in other militaries have been favorable (Hughes et al., 2008; National Defence and Canadian Forces Ombudsman, 2004). For example, members of the Canadian Forces have returned home from Afghanistan via Guam or Cyprus by spending 5 days of structured time with their units. In addition, they are required to work about 3 half-days at their home base, and this provides additional time to adjust to life back in Canada and ease the transition to family life (Rossignol, 2007).

DOD does not have a formal policy in place to route returning US troops through third-location decompression, but the Marine Corps has instituted a rest and decompression period during which unit commanders, noncommissioned officers, and chaplains provide the Warrior Transition Brief (Hughes et al., 2008). The implications and potential consequences of shorter dwell time, more frequent deployment, and inability to meet DOD's rotational standards are of obvious importance for understanding the readjustment needs of service members and their families; policies that help to ease reintegration are of paramount importance.

The committee recommends that the Department of Defense formally assess whether a third-location decompression program would be beneficial for US combat troops. Third-location decompression has the potential to give troops time to begin to readjust before returning to their homes and family responsibilities.

Deployment and Military Spouses

The challenges of deployment are different for service members and their spouses and the readjustment needs of military spouses are not secondary to those of the returning service member. In fact, some studies have suggested that spouses face similar levels of distress and appear to develop mental anxiety or trauma as a result of experiences prior to, during, and after the service member's deployment (Mansfield et al., 2010). Eaton et al. (2008) studied over 700 military spouses seeking primary care at military facilities. According to both broad and strict screening criteria, spouses and service members reported similar levels of major depression and generalized anxiety disorders. Spouses were more likely than service members, however, to seek care and less likely to be impeded in doing so by worries about stigma. About 20% of spouses received care only from primary-care physicians rather than from mental health specialists.

Several studies now suggest that service members' deployments are associated with increased stress during pregnancy and increased risk of postpartum depression. A survey of pregnant military and civilian patients at Camp Lejeune, North Carolina, indicated that partner deployment, active-duty status, and having more than one child at home were associated with higher levels of stress (Haas et al., 2005). A review of the charts of 450 women who completed the Edinburgh Postnatal Depression Scale revealed that new mothers whose partners were

deployed during the pregnancy were 2.75 times more likely to screen positive for postpartum depression than new mothers whose military partners were not deployed (Robrecht et al., 2008).

Flake et al. (2009) recently surveyed 101 Army parents who had children 5–12 years old and a deployed spouse. Some 42% reported clinically significant parenting stress, and 32% reported significant psychologic symptoms in their children. Parents who reported high levels of stress were 7 times as likely as those who did not to report symptoms in their children, but were only one-third as likely to do so when they perceived that there was good social support from the military and those around them.

Vormbrock (1993) reviewed the literature on spouses' reactions to wartime and other marital separations in light of attachment theory, which would predict that adults will show the same protest–despair–detachment pattern as children in response to separation. Available data suggest that despair is followed by anger and reorganization of attachment perceptions. Vormbrock also predicted emotional detachment, anger, and anxious contact-seeking at reunion and found detachment and anger more on the part of the home-based spouse and contact-seeking by both partners. She predicted and found that separation length was positively related to distress, detachment, and damage to the attachment relationship. Separation distress was heightened by stressful events during the separation and lessened when adults had access to alternative attachment figures, but revival of childhood attachments, such as those to parents, could undermine the marital relationship. During deployment, service members may develop strong support relationships with fellow service members, whereas family members may rely on members of the community, other families experiencing deployment, and children (Bowling and Sherman, 2008). After return, service members and family members may both find it challenging to reorient themselves to their primary attachment partners and find comfortable ways to process their deployment experiences with one another and members of their support networks.

As expected, exposure to combat appears to threaten the quality of marriage. A report by IOM (2008a) found strong evidence that people who were deployed were more likely to have marital problems when they returned, including intimate partner violence, than people who were not deployed; however, most of those findings were based on studies of Vietnam veterans. Among Vietnam veterans, those who had PTSD were more likely to commit acts of interpersonal or intimate-partner violence than those who did not have PTSD (IOM, 2008a). One longitudinal study of Persian Gulf veterans found that veterans who had PTSD had less social support than those who did not.

Several studies have examined the effect of deployments on marital dissolution. In the National Survey of Families and Households, 3,800 veterans of World War II and the conflicts in Korea and Vietnam reported significantly higher rates of marital dissolution if they had served in combat than if they had not (Ruger et al., 2002). A large representative survey (n = 59,631) of military members showed that deployment to Operation Desert Storm was associated with a statistically significant increase, by 4.2 percentage points, in later divorce rates of female service members (Angrist and Johnson, 2000); no association was observed in male service members. An IOM study (2008a) on the health effects of the Gulf War concluded, however, that although there was a suggestive relationship between combat deployment and marital conflict, there was insufficient evidence to indicate an association with marital dissolution.

During deployment, military members worry about their relationships. Since 2003, family separation has consistently been among the top concerns of service members stationed in

Iraq and Afghanistan, and is more strongly related than any other concern to mental health problems (Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2008). Length of deployment (but not number of deployments) appears to be positively correlated with the percentage of deployed service members who indicate that they plan to obtain a divorce or to separate after their return; for example, the MHAT-V estimates that around 6% of noncommissioned Army officers indicate plans to divorce at 1 month of deployment, compared to over 20% at 15 months of deployment (Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2008). Plans to divorce or separate also appear to be inversely correlated with pay-grade: the MHAT-V reported that in 2007, 17.0% of junior enlisted soldiers in theater for 9 months were considering getting a divorce, compared to 12.3% of noncommissioned officers and 3.6% of officers. So far, however, there is little evidence that those intentions are realized, despite findings from prior wars that combat veterans experienced significantly increased divorce rates (Ruger et al., 2002).

Contrary to the view that longer deployments lead to a higher risk of marital dissolution, Karney and Crown (2007) found in a study of personnel records of over 560,000 service members who married in 2002–2005 that the longer a service member was deployed, the lower the risk of divorce or separation, especially if they were male, were younger, or had children. Those results, from the most definitive study of the current war to date, were consistent with the "hasty-marriage" hypothesis, which suggests that in response to impending deployment or to receive military benefits tied to marriage, some people enter hasty marriages that are more likely to end prematurely. This hypothesis differs from an alternate explanation which suggests that the stress of deployment undermines otherwise healthy marriages. The findings of Karney and Crown (2007), however, are preliminary; they focus only on relatively recent marriages followed for a relatively short period. In a recent study of graduates of the Air Force Academy, McCone and O'Donnell (2006) found some evidence to support the hasty-marriage hypothesis among graduates who timed their marriages to one another to occur very shortly after graduation so that they would be posted together as they began their Air Force careers.

Finally, there is evidence from two small studies of the current conflict that symptoms of combat-related trauma are related to marital distress for both partners. Wives were more distressed when they could not see an obvious cause for their husbands' symptoms. That could occur when wives perceived symptoms that their husbands failed to acknowledge or when husbands reported more severe symptoms than their wives expected given what was known about their combat experience (Goff et al., 2007; Renshaw et al., 2008).

Although deployments are likely to present challenges for unmarried partners and for the parents and other family members of service members, no data on their experiences were found. To the extent that such people are called on to support service members during deployment cycles and during recovery from wounds and injuries, that omission requires attention.

Deployment and Children

Many parents, practitioners, and policy makers are concerned about the implications of deployment for children, but the research evidence remains sparse, and the research has used longitudinal or quasiexperimental designs relatively rarely. Most studies of prior conflicts have suggested that deployment is associated with a variety of internalizing and externalizing

symptoms in children that in most cases do not rise to the level of clinical significance (Cozza et al., 2005; Lincoln et al., 2008). It has been shown that children's scores on academic achievement tests dropped slightly as a function of parental deployment (Lyle, 2006).

Thus far, the findings from the current war are consistent with those of earlier research. In a study of 169 preschoolers in child-development centers at a Marine Corps installation, teachers reported increased internalizing and externalizing behaviors in children who have deployed parents (Chartrand et al., 2008). One-third of the military adolescents who attended a summer camp reported changes in their mental health that are consistent with depression or anxiety (Huebner and Mancini, 2005). Another study of adolescents found that those who had deployed parents reported more reactions to stress and resource losses than those who had nondeployed or civilian parents (Barnes et al., 2007). More recently, a study by Chandra et al. (2010) found that children in military families reported higher levels of emotional difficulties than those observed in the general population. The authors also found that length of deployment was associated with a increased prevalence of adjustment difficulties (such as academic problems and anxiety) in children both during deployment and during reintegration. According to DOD health records, military children's use of mental health–care services rose substantially from 2003 to 2008: inpatient days rose by 50% or more, and mental health appointments rose by more than 85% per capita.

Chartrand et al. (2008) found that spouses of deployed service members who had children 3 years old or older had significantly higher depression scores than spouses of nondeployed personnel; their children exhibited increased behavioral symptoms compared with peers who did not have a deployed parent. Another recent analysis of the psychosocial effects of deployment on military children found that families experiencing deployment identified one-third of children at "high risk" for psychosocial morbidity and that parenting stress was the most significant predictor of children's psychosocial functioning (Flake et al., 2009).

Although there is considerable agreement that some children are especially vulnerable to the challenges of deployment, findings have been mixed. Several studies suggest that boys and younger children may be more vulnerable than girls and older children, but older girls are at greater risk for sexual abuse (Cozza et al., 2005; McCarroll et al., 2008). In the Chartrand et al. (2008) study of preschool children, however, younger children displayed fewer symptoms.

Deployment may affect rates of child maltreatment. Although rates in general appear to be no higher than those in the civilian population, child maltreatment by the nondeployed spouse appears to rise during deployment. A recent analysis of the occurrence of child maltreatment in military and nonmilitary families in 2000–2003 and the effect of deployment escalations after the September 2001 terrorist attacks in the United States found that the rate of substantiated maltreatment of children of military families doubled, whereas the rate in nonmilitary families was unchanged (Rentz et al., 2007). In Army families that experienced both deployment and child maltreatment in 2001–2004, there were 200%, 300%, and 400% increases in rates of physical abuse, maltreatment, and neglect, respectively (Gibbs et al., 2007). Reintegration also can be a dangerous period. Some studies have shown positive associations between length of deployment and later rates of intimate-partner violence, especially if service members are suffering from combat-related trauma (McCarroll et al., 2000), and the increases in rates of child maltreatment (Rentz et al., 2007) observed as service members left for deployment (reported earlier) also occurred when they returned.

Studies during the first Gulf War demonstrated that children's psychologic symptoms were more severe when their mothers' own well-being was seriously compromised (Cozza et al., 2005). Similarly, parents who reported high levels of stress were much more likely to report symptoms in their children (Flake et al., 2009). The diversity of children's experiences as a function of deployment is not fully understood. Married service members who are parents leave their spouses as "geographically single" parents during deployment, sometimes on military installations and sometimes in civilian communities. Unmarried single parents must leave their children in the care of others through prior arrangements made via "family-care plans." Service members who have noncustodial children also face challenges in maintaining their relationships with their children.

Parents who accessed military support services reported less child psychosocial morbidity. That finding both suggests that use of services may ease parenting stress and underscores the necessity of providing military families with the support they need to cope with and adjust to deployment circumstances. Families considered more vulnerable to adjustment difficulties and in need of targeted outreach include those simultaneously undergoing other major transitions, such as relocation, pregnancy (Haas and Pazdernik, 2007), and bereavement; families of junior personnel; and families that have multiple needs and problems before deployment (Booth et al., 2007).

As of March 2008, over 3,400 children had experienced the death of a parent during the OEF and OIF conflicts (HR 265, 110th Congress). Available data, although sparse, indicate that bereaved children are at increased risk for psychiatric disorders or behavioral or emotional problems (Cozza et al., 2005). Moreover, injured parents may have reduced capacity to respond sensitively to their children. Family roles may become ambiguous and unstable in the aftermath of a serious injury and long recovery (Cozza, 2007), when children may receive reduced attention from their noninjured parents because of the needs of the injured family members (Perlesz et al., 1999). Little guidance is available to help children to understand and adapt to the death or life-altering injury of a parent (Cozza, 2007).

Deployment and Social Outcomes

Education

Many studies have evaluated whether veterans and service members achieve more education than civilians, but few have evaluated whether educational attainment is affected by deployment. Two studies examined the effects of deployment (or combat) on education and suggested that deployment has a neutral or negative effect on educational attainment. Both studies focused on Vietnam veterans. One (Lyons et al., 2006) concluded that Vietnam veterans were negatively affected by deploying and attained fewer years of schooling; it used data from the Vietnam Era Twin Study of Aging and compared 44 twin pairs in which one twin was deployed to Vietnam and the other was not (Lyons et al., 2006). The other study, using data from the National Vietnam Veteran Readjustment Study (NVVRS), concluded that combat did not affect educational attainment (Vogt et al., 2004). However, the committee did not find published research on the effect of deployment on education among the service members returning from the current wars.

Most previous research has shown that veterans benefited from the funding for education provided by the Servicemen's Readjustment Act of 1944, commonly known as the GI Bill. The

GI Bill provided funds for veterans to continue their education beginning at the end of World War II but was discontinued in 1955. In 1965, the bill was reinstated and covered veterans who had served in the interim. In every era, veterans have attained more education if they used the military educational benefits (Angrist, 1993; Sampson and Laub, 1996; Stanley, 2003). According to one study, the GI Bill led veterans to attain 15–20% more education than their nonveteran counterparts who were born in the 1920s and early 1930s (Stanley, 2003). During the decade (1955–1965) when GI Bill funds were not available, academically ambitious veterans were much less likely to attend and graduate from college than were comparable nonveterans (MacLean, 2005). It has been shown that economic opportunity is more strongly linked to the GI Bill than to military service itself (Sampson and Laub, 1996), and veterans had higher earnings if they used the educational benefits provided by the GI Bill (Angrist, 1993; Sampson and Laub, 1996; Stanley, 2003). None of the research on the GI Bill has examined whether the effects depend on whether a veteran was deployed.

Employment

There are sparse data on the effect of service in OEF and OIF on employment outcomes; however, studies from Vietnam might be instructive. Several studies examined the effect of service in Vietnam and the effect of PTSD on employment and earnings. Using archival data from the NVVRS that included a cohort of 1,200 male and 432 female Vietnam veterans and 412 male and 304 female era[9] veterans, Zatzick et al. (1997a,b) examined the effect of PTSD on employment. Most male veterans were middle-aged and married at the time of their interviews; over 50% had some college education. Veterans who had PTSD were more likely not to be working at the time of the survey than veterans who did not have PTSD. The study of 432 female Vietnam veterans (Zatzick et al., 1997b) found that those who had PTSD (8.9% of the sample) were 10 times as likely to be not working as those who did not have PTSD (OR 10.4, 95% CI 1.8-61.9), after adjustment for age, ethnicity, marital status, educational attainment, region of country, and comorbid psychiatric disorders. That was the strongest association with PSTD that the authors found among the outcomes examined.

Recent data from the Department of Labor's Bureau of Labor Statistics showed that the unemployment rate of all veterans of the US armed forces was 4.6%, and the unemployment rate of those who have served in the US armed forces since September 2001 was 7.3%. As with nonveterans, the jobless rates for veterans vary widely with age. Veterans 18–24 years old had an unemployment rate of 14.1%—nearly double the rate of those 25–34 years old, 7.3%, and almost three times the rate for those 35–44 years old, 4.9% (Bureau of Labor Statistics, 2009).

Research has shown that from 2002 to 2004 there was an increase in the number of veterans receiving unemployment compensation (UCX)[10] and that the cost of the program to DOD had increased by about 75% (Loughran and Klerman, 2008). Loughran and Klerman noted that "the sharp and sustained increase in the UCX caseload since 2002 has contributed to the concerns that veterans of the wars in Iraq and Afghanistan are having difficulty transitioning to the civilian labor market." In contrast, the overall youth unemployment rate declined in that period. Further research suggested that the rapid increase in UCX caseloads is attributable to the intensive use of the reserves in OEF and OIF; specifically, 58% of the increase from 2002 to

[9]The term *era veteran* is being used to mean veterans who were not deployed to theater.
[10]The UCX program is the military counterpart of civilian unemployment insurance, and honorably discharged active-duty service members are eligible to receive UCX benefits.

2005 is attributed to the Army reserve components (Loughran and Klerman, 2008). The authors noted that the Air Force, Navy, and Marine Corps reserves contribute a very small fraction of the overall increase in UCX caseloads. Thus, the balance (about 40%) of the increase is in the active components. The increases in veterans' claims between 2002 and 2005 were not the result of a declining civilian job market, inasmuch as the civilian labor market generally improved during that period. It is believed, however, that longer deployments are associated with higher claim rates. Loughran and Klerman showed that the longer deployments account for more than one-third of the overall increase in Army active and reserve UCX caseloads from 2002 to 2005. Their analyses also demonstrated that self-reported health worsens with increasing length of deployment, and that is also associated with higher UCX claims.

There is evidence that veterans face discriminatory hiring practices. One study found that 66 midlevel managers and supervisors who were reviewing resumes of applicants were less likely to recommend the hiring of Vietnam veterans because of the perception of a higher probability of psychologic problems, although all the applicants (veterans and nonveterans) were equally qualified for the jobs to which they applied (Bordieri and Drehmer, 1984). Another study examined the effect of recent military service and hiring practices for entry-level jobs in urban markets. In that study of employers' attitudes toward black job applicants, military veterans with transferable skills were preferred over black nonveterans. However, veterans who had military experience in combat positions did not receive preferential treatment regardless of racial or ethnic background (Kleykamp, 2009).

Savych (2007) examined the effect of deployment on spousal labor-force participation. It was noted that deployment to OEF or OIF reduced spousal labor-force participation by 2.8%, but that finding varies with the age of the youngest child in the family. Reduction in employment by 4.9% was seen in families that had children under 6 years old. Similarly, spouses decrease labor-force participation in the several months before their partner's deployment.

Income, Earnings, Wages, and Debt

It has been noted that members of the reserve components earn more income when activated than before being activated (Loughran et al., 2006; Martorell et al., 2008). However, most reserve-component service members, in response to surveys conducted in 2004 and 2005, reported earnings losses when activated (GAO, 2009). A recent RAND report (Martorell et al., 2008) determined that on the average reserve-component service members experienced a net gain of about $1,400 per month in 2004 and about $1,600 per month in 2005 after activation. The study, however, identified specific military occupations (for example, general sonar operator, investigations, and military training instructor) in which on the average less income was earned after activation in 2004 than was earned before. The RAND study identified an additional 48 enlisted military occupations and 14 officer occupations in which more than 20% of the reserve-component service members sampled experienced an earnings loss after activation. Those occupations accounted for 18% of activated enlisted members and 31% of activated officers.

The Martorell et al. (2008) study examined the discrepancy between the analyses of Social Security data, which indicated that reservists earn more when they are activated, and the analyses of survey data, which indicated that they earn less. Reservists appear to earn less when the analyses are based on the 2004 and 2005 Status of Forces Survey of Reserve Component Members. The study matched the administrative data collected for the preceding analysis to data collected for the Status of Forces survey. When the data are matched, reservists appear to earn

much more when they are activated on the basis of administrative data; for example, they earned 43–44% more on active duty. However, according to the survey data, they earn 7–46% less when they are on active duty. The Status of Forces surveys provided data on 55,794 respondents in 2004 and 211,000 respondents in 2005. The authors speculated that the different conclusions stem from problems with the survey data and that the administrative data, which suggest that they earn more, are more accurate (Martorell et al., 2008).

It has been noted that young military families have been targeted for predatory payday and car-title loans, which resulted in substantial debt (DOD, 2006; Oron, 2006; Tanik, 2005). Many military families are young and inexperienced in managing finances. About 48% of enlisted service members are under 25 years old (DOD, 2007) and are without financial experience or savings to cushion them in an emergency.

Car-title loans enable borrowers to secure loans with their car titles. The typical loan is a small fraction of the car's worth, has a 300% annual interest rate, and has a 1-month loan term. Failure to pay can result in repossession of the vehicle. The high cost and the risk of losing one's car often result in borrowers' repeated loan renewal (DOD, 2006). Payday loans are small loans secured by borrowers' personal checks or agreement to automatically withdraw money from their accounts. Loans average $350, are due in full on the next payday (typically in 14 days), and have 390–780% annual interest rates (DOD, 2006). Payday lending can be found in storefronts, check-cashing outlets, pawnshops, and so on, and are heavily concentrated around military bases. DOD (2006) notes that the area around the southern gate of Camp Pendleton in Oceanside, California, has 22 payday lenders—17 more than would be expected for that ZIP code. Similarly, in the ZIP code in Killeen, Texas, outside Fort Hood, there are 9e payday lenders—7.3 more than would be expected for the population in that ZIP code (DOD, 2006).

Graves and Peterson (2005) documented the number of payday lenders near military bases by surveying 20 states, 1,516 counties, and 13,253 ZIP codes; 15,000 payday lenders; and 109 military bases. They looked at states that are home to military communities—such as California, Texas, and Virginia—and analyzed data on the distribution and density of payday lenders and banks by ZIP code. Their findings indicated that there are large concentrations of payday-lending businesses in the counties and ZIP codes near military bases (Graves and Peterson, 2005).

Active-duty service members are three times more likely as civilians to have taken out payday loans. It has been reported that one in five active-duty service members had used payday loans, which cost military families over $80 million in fees every year (Tanik, 2005).

Homelessness

The National Law Center on Homelessness and Poverty estimates that about 1% of the US population experiences homelessness—living on the streets, in shelters, or with relatives or friends—in any given year. VA reports that about one-third of the homeless population served in the military at some point (VA, 2009a). Many homeless veterans served during the Vietnam era (47%), although veterans of other periods are also homeless or at risk for being homeless. Almost half the homeless veterans have some mental disorder, almost 70% have a substance-use disorder, and over half are black or Hispanic (VA, 2009a).

A recent IOM report (2008a) evaluated the results of several studies that assessed whether deployment is associated with homelessness. It concluded that the results were mixed

with respect to whether there is an association between deployment to a war zone and homelessness. Only one of the studies (Rosenheck and Fontana, 1994) showed an association between combat exposure and homelessness in Vietnam veterans. The committee needs to explore the issue of homelessness in phase 2 of its study because the data that are available are based on previous wars. In general, the presence of a mental disorder was more strongly associated with homelessness than was combat exposure itself.

Incarceration

In 1998, over 225,000 veterans were in prison or jail in the United States—more than half for violent offenses. Of the incarcerated veterans, about 20% had served in combat duty in the Vietnam War or the Gulf War (Mumola, 2000). Black et al. (2005) investigated the prevalence of incarceration and its association with deployment among veterans who had been on active duty during the Gulf War. The study used a structured telephone interview and included military personnel who lived in Iowa in 1995–1996 and had been deployed to the gulf and a comparison sample of nondeployed military personnel. The sample included 3,695 participants (76% of eligible subjects) randomly drawn from four study populations: Gulf War regular military (n = 985), Gulf War National Guard and reserves (n = 911), non–Gulf War regular military (n = 968), and non–Gulf War National Guard and reserves (n = 831). Of the 3,695, 22.9% (845) reported that they had been incarcerated at some point in their lives, 14.5% had been incarcerated at least once before their deployment, and 8.3% had been incarcerated only during or after their deployment.

In the 1986–1987 NVVRS, Kulka et al. (1990) found that the 406 Vietnam-theater veterans who had high levels of war-zone stress were more likely to have been arrested or jailed than the 783 theater veterans who had moderate–low war-zone stress (39.1% versus 27.7%) and were more than three times as likely (8.8% versus 2.8%) to have been convicted of a felony. Involvement with the criminal-justice system was based on self-reports of number of times arrested since the age of 18 years, nights spent in jail or prison (since the age of 18 years), and number of lifetime convictions for a felony offense and on whether the veteran was in jail or prison at the time of the interview. Of the 319 Vietnam-theater veterans who had current PTSD, 45.7% had been arrested or jailed more than once in their lives compared with 11.6% of the 871 theater veterans who did not; 11.5% of the veterans who had PTSD had been convicted of a felony. PTSD symptom level at the time of the interview was assessed with the Mississippi Scale for Combat-Related PTSD; a study cutoff score of 94 was used as a threshold for an assessment of current PTSD.

Given that combat exposure has been associated with higher rates of arrests and convictions in past conflicts, it is possible that combat exposure in OEF and OIF will also be associated with higher rates of incarceration among service members and veterans. Moreover, there are data to suggest that inmates who have been convicted of a violent crime are more likely to have sustained a pre-crime TBI (CDC, 2006). Because TBI is the signature injury of OEF and OIF, those who suffer from that injury may be at higher risk of being incarcerated. Research on the OEF and OIF deployed population is needed to understand what the extent of the problem may be.

Communities

A few studies have examined the effect of deployment on businesses. Doyle et al. (2004) conducted an analysis of employer costs resulting from reserve-component mobilizations. Their findings suggest that for small employers the most important costs are caused by lost productivity rather than by requirements imposed by the Uniformed Services Employment and Reemployment Rights Act. The law is intended to ensure that people who serve or have served "(1) are not disadvantaged in their civilian careers because of their service; (2) are promptly reemployed in their civilian jobs upon their return from duty; and (3) are not discriminated against in employment based on past, present, or future military service" (Employer Support of the Guard and Reserve, 1994). Doyle et al. noted that reservists returning from active duty have the right to return to their previous positions or equivalent ones and to receive accumulated seniority raises and promotions. Thus, employers must bear the costs of temporarily replacing their reservist employees; however, there do not appear to be data on those costs.

On the basis of published civilian age-group and firm-size data, Doyle et al. (2004) estimated that 50–58% of employed reservists participate in an employer-provided retirement plan and that employers' costs for reservists' retirement plans average $372 per month. In additional, employers of reservists ordered to active duty for a month or less must continue health-insurance contributions for them. Using published civilian age-group and firm-size data, Doyle and colleagues estimated that about 65% of reservists participate in employer-provided health-insurance plans and that the monthly employer cost averages $215 for single people and $550 for families.

Small businesses might be disproportionately affected by the loss of reservists ordered to active duty, because the loss of an employee at a small firm constitutes a greater share of output than at a large firm. Doyle and colleagues interviewed a small number of recipients of Small Business Administration Military Reservist Economic Injury Disaster Loans, which are given to companies that are unable to meet their operating expenses after an essential employee has been called to active duty. The findings indicate that the most common effect of activation is lost business and that losses are experienced even after the reservists return from active duty. Furthermore, replacing a reservist, even if it is feasible, does not necessarily offset lost business; in some cases, the long-term effect of activation may result in permanent harm to the business (Doyle et al., 2004).

The Congressional Budget Office (CBO, 2007a) interviewed 19 employers of 28 reservists and found that small businesses that lose essential employees, businesses that employ highly skilled workers, and self-employed reservists were the most severely affected as a result of activation and federal job protections. Hope et al. (2009), in their review of the literature on the effect of reserve activation on small businesses, noted that small businesses are disproportionately affected and that the length of activation has a small but significant effect on the businesses' revenue.

The sections above have focused on many issues related to families, spouses, children, women, and racial and ethnic minorities identified in studies of previous conflicts rather than studies of OEF and OIF active-duty personnel, veterans, and family members. The committee believes that many of the studies provide information that is relevant to the current conflict, but active-duty service members, reservists, and veterans face hardships because of service in Iraq and Afghanistan that not only extend beyond physical and mental health problems but might be

peculiar to these wars. They also face numerous readjustment issues that influence their ability to adjust to life outside theater and that can affect their families. Research on the OEF and OIF deployed population is needed not only to understand the extent of the readjustment but to understand how to provide assistance.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on the social and economic effects of deployment and multiple deployments on families. For example, research should examine the effects of multiple deployments on domestic violence and maltreatment of children, as well as on financial well-being.

WOMEN AND MINORITIES

The previous section described the stresses and potential health and social consequences that all service members and their family members face because of service in Iraq and Afghanistan. Select subpopulations in the military face unique stressors and may have other needs that require additional attention. In this section, the committee reviews and summarizes needs specific to women and racial minorities.

Women

Women now comprise over 14% of the active-duty force (DOD, 2007). As of April 2009, 218,000 women had been deployed to OEF or OIF—11% of all personnel deployed to Iraq and Afghanistan (Defense Manpower Data Center, 2009). Although women are technically barred from serving in combat specialties, such as armor or infantry, a growing and unprecedented number of female soldiers are deployed to combat areas where their lives are at risk (Burrelli, 1996); this is a relatively new phenomenon. They serve in a range of support positions (such as pilots, intelligence, transportation, and mechanics) that involve travel outside military bases, coming under direct fire, and working alongside combat soldiers.

All service members are exposed to exceptionally high levels of workplace stress, but women in the military face some unique stressors and trauma exposure that may affect their mental health and emotional well-being. Female veterans have a higher burden of medical illness, worse quality-of-life outcomes, and earlier psychologic morbidity than do men who are exposed to the same levels of trauma (Nayback, 2008). Both the military and family life require commitment and loyalty, and servicewomen who have families may experience intense conflict between the demands of their military and family roles, given the centrality of the maternal role for most women. Some of the issues specific to women are military-related sexual harassment and assault and the resulting mental health outcomes, histories of premilitary trauma, unique health-care needs, pregnancy and the postpartum period, and the configuration of family roles (such as mother, spouse, and caregiver for aging parents).

Military-Related Sexual Harassment and Assault and Mental Health

Women serving in the military face the risk of sexual harassment and sexual assault, both of which are associated with the development of mental health problems. Gradus et al. (2008) reported that 72.5% of women and 41.6% of men in their sample experienced sexual harassment during their military service; these findings are similar to those of earlier work that reported rates

of 78% and 38% in women and men, respectively (Bastian et al., 1996). The study also found an association between sexual harassment and harmful alcohol use in women but not in men (Gradus et al., 2008).

In a study of duty-related stress and sexual stress in the etiology of PTSD in women who sought treatment (Fontana and Rosenheck, 1998), 63% reported experiences of physical and sexual harassment during military service, and 43% reported rape or attempted rape. Both sources of stress were found to contribute significantly to the development of PTSD. On the basis of that pre-OEF and pre-OIF sample, the authors concluded that women's exposure to sexual stress in the military was much more prevalent than previously believed and that it contributed substantially to the development of PTSD.

A study of a nationally representative sample of women in VA ambulatory care found that nearly one-fourth reported having experienced sexual assault while in the military (Hankin et al., 1999). The study also found that the prevalence of current depressive symptoms was three times higher and the prevalence of current alcohol-abuse symptoms two times higher in women who reported experiencing sexual assault during military service than in women who did not. Servicewomen's use of mental health–care services was low: only half the women that experienced military sexual assault and exhibited depressive symptoms reported receiving any recent mental health treatment. There are now substantial shortages of qualified mental health specialists in the military, in which professional "burnout" and attrition rates are high (American Psychological Association Presidential Task Force on Military Deployment Services for Youth, Families, and Servicemembers, 2007; Department of Defense Task Force on Mental Health, 2007; Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2008; Tanielian and Jaycox, 2008); this impedes soldiers' access to needed care. That was a topic that the committee members often heard at their town hall meetings, particularly at the meeting in Killeen, Texas, outside Fort Hood (see Appendix B). Another important barrier to seeking mental health care is the persistence of stigma surrounding mental illness and treatment (Department of Defense Task Force on Mental Health, 2007; Hoge et al., 2004; Tanielian and Jaycox, 2008).

A small but growing body of research investigates the relationship between sexual harassment and sexual trauma and the development of PTSD in women. Kang et al. (2005) conducted a nested case-control study using National Health Survey data to evaluate the association of sexual harassment and assault during deployment with PTSD. They found that out of 2,131 female Gulf War veterans, almost 24% reported a history of sexual harassment and 3.3% reported a history of sexual assault; these rates are lower than those reported by other studies, which may be related to the collection of data 4–5 years after the subjects left the Gulf War theater. Among these 2,131 women veterans, deployment-based sexual harassment and assault were statistically significantly associated with the development of PTSD (OR 5.41, 95% CI 3.19-9.17, respectively) and conferred greater risk for PTSD than did exposure to combat. Furthermore, the analyses identified a dose–response relationship between PTSD status and self-reported degree of sexual trauma (no trauma, sexual harassment only, sexual assault only, and both harassment and assault). Himmelfarb et al. (2006) examined relationships among military sexual trauma, nonmilitary sexual trauma (before and after military service), and PTSD in female veterans and found that sexual trauma during military service was more strongly associated with PTSD than was premilitary or postmilitary trauma.

Premilitary Trauma

Among men and women in the military, rates of premilitary trauma (such as childhood sexual or physical abuse) are significant and higher than those in the general population (Caulfield et al., 2005; Merrill et al., 1999; Rosen and Martin, 1996). For example, a recent study (Caulfield et al., 2005) found childhood physical abuse prevalence of 38% and 27% among Marine Corps servicewomen and servicemen, respectively—far higher than the rates of 5% and 3% derived from the National Comorbidity Survey[11] (Kessler et al., 1999).

Women entering military service are particularly likely to report prior trauma. Rosen and Martin (1996) found that 35% of active-duty Army servicemen and 58% of active-duty Army servicewomen reported experiences of childhood sexual or physical abuse. Another study found that 57% of a sample of 1,093 female Navy recruits reported childhood physical or sexual abuse—18% reported physical abuse only, 17% reported sexual abuse only, and 22% reported both (Merrill et al., 1999). In an analysis of the effect of premilitary interpersonal trauma on attrition, Caulfield et al. (2005) found that 48% of men and 68% of women reported a history of premilitary trauma. The investigators found that women who had histories of trauma were 1.6 times more likely to be discharged during recruit training, which is intensely demanding physically and emotionally, than women who did not have such histories. Among recruits who had premilitary trauma histories, women were discharged at a higher rate, 20%, than men, 13% (Caulfield et al., 2005).

Women are also more likely to have experienced chronic trauma before deployment, such as repeated childhood sexual assault or recurring intimate-partner violence, which confers increased risk for the subsequent development of PTSD (Tolin and Foa, 2006). Furthermore, 65% of health-care providers at Walter Reed Army Medical Hospital and Bethesda Naval Hospital reported in an informal survey that sexual trauma (either in childhood or in theater) is an issue in the treatment of female patients for PTSD (D. Benedek, 2008, unpublished data cited in Society for Women's Health Research, 2008).

Women's Health-Care Needs

Wartime conditions impose unique challenges for female soldiers who need routine or specialized gynecologic health services, particularly as deployments become longer (over 1 year) and more frequent. Inadequate hygiene facilities for women in combat zones can result in an increase in physical health issues, such as bladder infections (Society for Women's Health Research, 2008). Furthermore, a substantial gap persists in predeployment gynecologic screenings and in-theater care (Nielsen et al., 2009; Thomson and Nielsen, 2006). For example, in a survey of 251 women deployed to OIF, 44% reported being unable to receive needed care for a variety of gynecologic complaints; barriers to receiving appropriate care included inadequate transportation, laboratory services, and staffing (Thomson and Nielsen, 2006).

Most women in the military are of childbearing age (Reeves, 1995). When pregnancy is confirmed in female soldiers, they are classified as nondeployable but have the option of remaining on active duty to complete their service obligation; however, they are restricted from participating in most unit training activities (such as aircraft flying, marksmanship, and field exercises). Typically, their duties are confined to indoor office work (Bucher, 1999). As a result

[11]The National Comorbidity Survey (Harvard School of Medicine, 2005) is a nationally representative community household survey of the prevalences and correlates of mental disorders in the United States.

of those limitations, exemptions, and work redistribution, pregnant women in a unit are frequently perceived as increasing other soldiers' workloads—a perception that fosters resentment (Harrell and Miller, 1997). A report from the Defense Women's Health Research Program suggests that those conditions may create an especially stressful environment for pregnant servicewomen (Evans et al., 1996).

The postpartum period can be particularly stressful for female service members, particularly when they are taking care of other children at the same time. A recent analysis (Weina, 2006) of the amount of time that postpartum female soldiers need to return to their prepregnancy fitness level and to perform the Army Physical Fitness Test[12] concluded that the current assessment 6 months after delivery does not allow women enough time to recover and that 12 months would be a more suitable time to determine whether female soldiers had returned to their prepregnancy fitness level. The study also found that most women struggled to cope with the combination of roles required of them: mother of a new baby and potentially of other children, soldier, and potentially spouse or partner. In managing their lives, most servicewomen reported experiencing exhaustion to a degree that impeded their ability to exercise and return to their prepregnancy fitness levels by 6 months after delivery.

Caretakers

Women in the military may be particularly stressed by the enormous strain that deployment places on their multiple roles of mother, spouse, and, increasingly, the caretaker for aging parents. Although men might also assume the caretaker role, in general women continue to perform more housework than men and to be primary caregivers to their children regardless of their employment status (Coltrane, 2000). The greater likelihood of being their children's primary caregiver may make female service members particularly vulnerable to mental health problems when military service demands, such as long and unpredictable hours even while based at home, conflict with their maternal role. Service members are expected to be on call for unexpected problems and emergencies, to maintain a state of readiness for deployment, and to regard the military mission as their top priority; meeting these expectations may be particularly stressful for military women who are raising children. Vinokur et al. (1999) found that in a representative sample of women who served in the Air Force during the Gulf War, parenting stress was associated with both increased family–work conflict and decreased parental involvement and emotional functioning.

Deployment involves being separated from children and families for months at a time and leaving children behind with spouses or alternative caregivers. Single mothers confront special challenges. They report greater disruption to family functioning and more concerns about separation from their children (Kelley, 1994) than do married mothers, probably because of the greater discontinuity in care that deployment imposes on their households.

Deployment appears to affect the marital stability of male and female soldiers differently. Angrist and Johnson (2000) found that deployment led to a large, statistically significant increase in divorce rates in women in the military, but not men. Wives of men in the military may derive more support from the military community, in which women are more likely to fulfill the traditional role of military spouse, and thus be able to adapt to their husbands' absences to a greater degree. Husbands of servicewomen are in an atypical, potentially isolating position,

[12]The Army Physical Fitness Test is a standardized test used in the Army to measure soldiers' fitness.

paralleling their wives' experience to some extent. They may not use the community as a buffer against stress to the same degree as female military spouses and may object more to the military's potentially adverse effect on their employment status due to frequent geographic relocations.

Women and Posttraumatic Stress Disorder

The literature shows that civilian women have higher rates of depression and anxiety disorders, including PTSD, than civilian men (Kessler et al., 2005; Tolin and Foa, 2006). Generally, PTSD affects twice as many women as men, and women who have PTSD report having a lower quality of life than men who have PTSD (Holbrook et al., 2002). Women who have PTSD experience a longer time to remission of symptoms than men, and their symptom remission rate is half that in men (Breslau et al., 1998). Some of the potential sex differences in PTSD may be that women react more negatively to interpersonal stressors, exhibit more ruminative coping, and tend to retain negative memories in such a way that they "relive" the traumatic event to a greater extent (Society for Women's Health Research, 2008).

Studies of military populations that are posted at permanent bases have yielded findings similar to those in civilian populations (Hoge et al., 2002, 2007; Hourani and Yuan, 1999; Riddle et al., 2007). However, findings of studies that addressed sex differences in deployed military populations have been inconsistent (Hoge et al., 2007). The current knowledge of PTSD in women is sparse and has several important gaps related to the development and course of combat-related PTSD and treatment needs.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund studies to evaluate the effectiveness of mental health treatments currently being provided to women and to identify potential new treatments designed specifically to address women's unique circumstances and stressors, such as sexual harassment and assault, PTSD, and premilitary trauma.

Ethnicity, Race, and Culture

The US military is a multicultural and racially integrated institution (Lundquist, 2004, 2008) with increasing ethnic and racial diversity. Table 4.1 summarizes the number of minority-group members in the military that have ever been deployed to OEF and OIF.

TABLE 4.1 Racial and Ethnic Characteristics of Deployed Personnel to OEF and OIF from September 11, 2001, to the Present, First Deployment Only

Race or Ethnicity	Army	Navy	Air Force	Marine Corps
White	587,332	189,879	257,924	158,184
Black	157,568	62,368	44,150	21,180
Hispanic	88,628	42,760	21,607	33,545
Asian or Pacific Islander	31,565	22,506	13,349	8,257
American Indian or Alaskan Native	8,652	11,485	3,573	4,675
Other	20,639	7,167	11,731	9,167

NOTE: Prepared by Armed Forces Health Surveillance Center (AFHSC) as of April 20, 2009.
SOURCE: Defense Medical Surveillance System (DMSS), as of April 17, 2009.

Even though the military is considered one of the most desegregated institutions, there is some evidence that minority-group members may experience discrimination that can have an adverse effect on their physical and mental health. A recent study (Sohn and Harada, 2008) examined the association between perceptions of discrimination and self-reported mental and physical health for Asian and Pacific Islander, black, and Hispanic veterans. Using the 2001 Veteran Identity Program Survey (VIPS), Sohn and Harada measured use of outpatient care, discrimination, and health status in three minority veteran groups. The sample (n = 3,227) was 44% black, 44% Hispanic, and 12% Asian and Pacific Islander. Racial and ethnic discrimination during military service was significantly associated with poorer physical health but not mental health (Sohn and Harada, 2008).

Data on whether there is a differential effect of race and ethnicity on military personnel ever deployed seem to be inconsistent. A study of racial equity (assessed according to examination of the racial distribution of US casualties in Iraq for the first 12 months of the conflict) of military service by Gifford (2005) found that blacks do not disproportionately bear the burden of US military operations, nor do other racial or ethnic minorities. Whites make up the majority of combat casualties given their majority status in active duty and their high representation in the US Army and Marine Corps combat specialties (Gifford, 2005). The data suggest that the probability of any person's becoming a casualty is a function more of representation in units most likely to make hostile contact with enemy forces than of race or ethnic discrimination in the burden of war.

Nonetheless, there is some evidence that minorities can have the worst outcomes of exposure to war. Secondary data analyses of the NVVRS (n = 1,195) found that Hispanic veterans who served in Vietnam had significantly more severe PTSD symptoms and a higher probability of experiencing PTSD than nonminority veterans (Ortega and Rosenheck, 2000). The authors were unable to explain those differences when adjusting for exposure to stressors or acculturation.

Some reports have addressed the question of whether there are ethnic or racial differences in the receipt of military benefits. A study by Nayback (2008) of minority-group veterans treated in specialized intensive VA programs for war-related PTSD found that black veterans' likelihood of receiving service-connected disability ratings for PTSD was significantly lower than that of other veterans. Similarly, a study by Murdoch and colleagues (2003) on the effect of veterans'

race or ethnicity on their likelihood of obtaining VA "service connection" benefits for PTSD established that black veterans' success rate was significantly lower than that of other veterans.

Other findings are inconclusive regarding whether there are ethnic or racial differences in service delivery or outcomes of military personnel. Results of a study by Westermeyer et al. (2002) indicated that American Indian veterans (n = 573) were less likely to use VA mental health services than other professional and nonprofessional mental health services because of the great number of barriers experienced. However, the study did not include a comparison group. In a prospective study of 122 black and 403 white veterans who had PTSD, no consistent or sustained differences in improvement were observed between racial groups, whether it was measured as psychometric change or by clinicians' improvement ratings (Rosenheck and Fontana, 2002).

Results of research on the role of race and ethnicity as risk factors for stress-related illness are mixed, but in general they support the conclusion that blacks and Hispanics are at greater risk for psychiatric disorders, particularly PTSD, as a result of deployment. In the Vietnam Experience Study, nonwhite veterans had a poorer psychologic status 15–20 years after the war than did white veterans (CDC, 1988). Findings from the NVVRS indicate that black and Hispanic veterans had a higher prevalence of PTSD than whites (Kulka et al., 1990). Among theater veterans, the prevalence of current PTSD in the NVVRS was 27.9% in Hispanics, 20.6% in blacks, and 13.7% in whites and others (Kulka et al., 1990). Those proportions held even when racial differences in combat exposure were controlled for inasmuch as minority groups experienced more war-zone exposures.

The Hawaii Vietnam Veterans Project (HVVP), modeled on the NVVRS, determined that veterans of Japanese ancestry had a lower prevalence of PTSD than whites (Friedman et al., 2004). Schnurr et al. (2003) studied 530 veterans drawn from the NVVRS and the HVVP and found that black, Hispanic, and native Hawaiian men were more likely and Americans of Japanese descent less likely than white men to have a lifetime diagnosis of PTSD. Furthermore, they found that Hispanic male veterans were more likely to have current PTSD than men in other ethnic groups (Schnurr et al., 2004). In a study of 1,377 American Legionnaires who had served in Vietnam and were followed for 14 years, minority race contributed to a more chronic course of PTSD; however, the minority sample was too small for further investigation (Koenen et al., 2003).

It has been suggested that the racial gap in prevalence or course of PTSD in Vietnam veterans might stem from racism in the military, identification with a nonwhite enemy, exacerbation of existing stress by institutional racism, or lower financial or emotional resources after the war (Marsella et al., 1990, 1993). Some differences in ascertained rates may also be influenced by cultural differences, such as stigma, that can affect accuracy of reporting. A growing body of research documents racial and ethnic differences in beliefs, perceptions of stigma, and preferences related to mental health counseling and use of psychotropic drugs (Cooper et al., 2003; Menke and Flynn, 2009; Nadeem et al., 2007). Attitudinal barriers to seeking mental health care among racial and ethnic minority servicemen and servicewomen may be greater, particularly in the context of a military culture that continues to stigmatize mental health care.

Several studies of Gulf War veterans have found that minority-group veterans had a greater prevalence of PTSD. In a study by Kang et al. (2003), nonwhite veterans had a higher prevalence of PTSD than white veterans, but the category "nonwhites" was not divided into

minority subgroups, and there was no adjustment for socioeconomic factors other than age and marital status. A study of 653 Gulf War veterans from Louisiana with relatively high minority-group participation (35%) found that minority-group troops, particularly men, tended to report greater psychologic distress and more PTSD symptoms than white men (Sutker et al., 1995); however, as in the Kang et al. study, there was no stratification beyond "nonwhite status" and no adjustment for other factors that may have contributed to the reporting differences. After adjusting for age, sex, race, rank, branch, and military status, Black et al. (2004) found that nonwhite Gulf War veterans were at almost twice the risk of developing an anxiety disorder as white veterans, but the difference was not statistically significant (Black et al., 2004).

Hoge et al. (2002) assessed the incidence of first hospitalization for a mental disorder in active-duty military personnel in 1990–1999. The rates of hospitalization per 1,000 person-years were 9.34 for whites, 9.25 for Hispanics, 8.30 for blacks, 5.97 for Asians and Pacific Islanders, and 18.27 for American Indians and Alaskan Natives. Fontana et al. (2000) found that among US peacekeepers in Somalia, PTSD symptoms were more severe in blacks, although there was no adjustment for socioeconomic factors in the model.

Substance-abuse problems have been explored in a study of black and Hispanic veterans who were being treated in specialized intensive VA programs for people who had war-related PTSD (Rosenheck and Fontana, 2002). The results showed that at the time of program admission, black patients had more severe alcohol and drug problems but less severe PTSD symptoms than white or Hispanic patients.

In an analysis of how "veteran identity" varies with race and ethnicity and of which factors of veteran identity influence preferences for and use of VA outpatient care, Harada et al. (2002) found that black and Latino veterans were twice as likely as non-Latino whites to prefer VA outpatient care. However, Latino veterans were not more likely to use VA outpatient care. Washington et al. (2002) also examined race and ethnicity and the use of VA outpatient services. Using the 1992 National Survey of Veterans, they found that Latino and American Indian veterans were more likely than non-Latino white veterans to report an inability to get needed care (Washington et al., 2002). Those findings on access suggest a need for targeted outreach measures.

The increasing proportion of minorities in the military highlights the need to improve understanding of the potential role of perceived discrimination on health status. Sohn and Harada (2008) used the 2001 VIPS to assess the association between perceptions of discrimination and self-reported mental and physical health in Latino, Asian and Pacific Islander, black, and white veterans. They found that racial and ethnic discrimination during military service was significantly associated with poorer physical health but not mental health. Satisfaction with providers' sensitivity to racial and ethnic background was significantly associated with better mental health. Those findings underscore the importance of developing policies that address racial and ethnic discrimination during military service while providing health care services for veterans.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on culturally sensitive treatment approaches targeted toward minorities. Research is also needed on utilization patterns of currently available services by minority populations and the efficacy of such services to improve health outcomes.

PROJECTING THE LIFELONG BURDEN OF WAR

Previous sections have considered the extent of knowledge about the effects of physical, mental, and other health outcomes and the effects of multiple deployments and reduced dwell times on service members' spouses, children, and communities. To identify gaps in services and to plan for needed services, there is a requirement for useful information about the economic impact of service in OEF and OIF on individual veterans and their families; however, there is little information on the magnitude of that impact, especially with regard to how it changes over time. The committee will examine the topic more fully in phase 2 of its study, but this section provides a preliminary look at the long-term economic impact of deployment on troops, families, and the larger community.

To clarify what the committee means by economic impact, it is useful to briefly review the way in which economists define the various costs of war. The *total social costs* of war comprise *public costs* or *budgetary costs*, which comprise benefits paid to veterans directly by governments and taxpayers; *social economic costs*, which comprise the burdens felt and paid for by individual veterans and their households; *macroeconomic costs*, which are spread over entire economies; and *interest costs*, namely the extra spending in the future required to put off the payment of costs that come due today. The committee is charged with estimating the economic impact of deployment on those who have served in OEF or OIF and their families. Budgetary costs indicate the extent to which the federal government compensates veterans for negative economic outcomes resulting from their service, while social economic costs indicate the magnitude of additional economic burdens placed on veterans and their families for which the government does not compensate (i.e., indicates needs that are not met). The committee will not, at least in this phase 1 report, discuss macroeconomic or interest costs.

The human burdens of war extend far beyond the period of active conflict, and these burdens carry real economic impacts for veterans and their families. To best plan for alleviating or compensating for these impacts, government projections of readjustment needs should take a long-term view. Although the present report focuses on an initial assessment of the immediate readjustment needs of veterans, their families, and their communities, the fact remains that many wounds of war will persist over veterans' lifetime. Combat injuries are the clearest example of persistent outcomes, but research has shown that combat deployment results in other, more subtle long-reaching effects. It is critical for VA and DOD to provide for the acute needs of returning veterans and their families, but it is equally important to plan for the long-term consequences and ensure that there will be adequate resources and infrastructure to continue to provide care, services, and compensation to OEF and OIF veterans and their families over many decades.

In the short run, a variety of factors will keep the public costs associated with deployment-related needs deceptively low: the low age of the average OEF or OIF veteran, the potential latency of service-related health conditions (such as PTSD), bottlenecks in access to services, and the relatively low cost of care today compared with care in the future. However, the human costs of coping with the lingering physical, mental, and social deployment-related outcomes will certainly continue to accrue after the conclusion of the Iraq and Afghanistan wars, as can be seen by examining trends in use of health care and benefits in veteran populations from past conflicts.

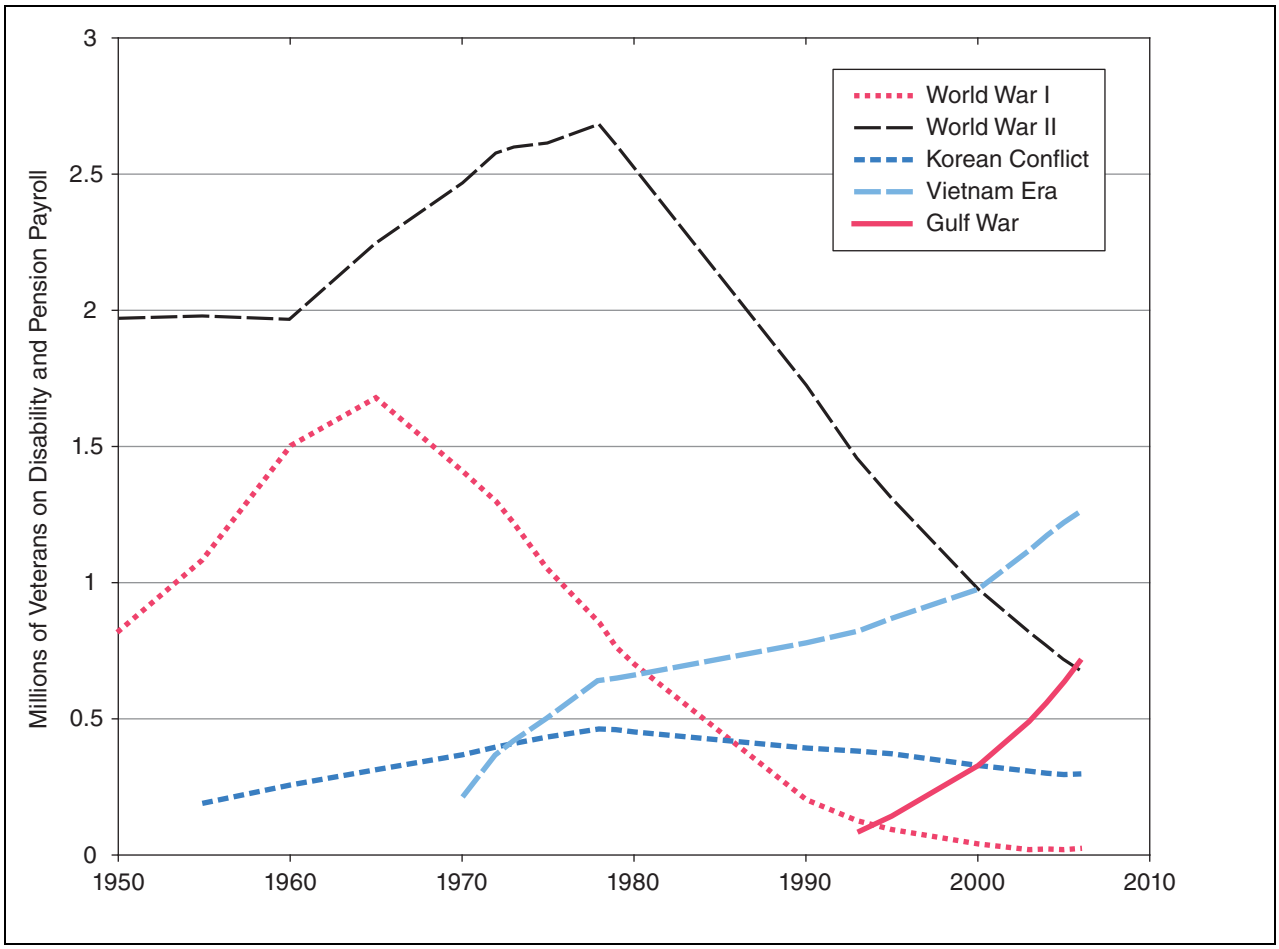

FIGURE 4.1 Number of veterans on disability and pension payrolls by period of service.
NOTE: Data include both living veterans and deceased veterans whose dependents received survivor benefits. Data are derived from the US Census Bureau's Statistical Abstracts of the United States, 1970, Table 406; 1974, Table 534; 1980, Table 640; 1990, Table 570; 1995, Table 580; and 2008, Table 509, which up to 2000 cite the Annual Report of the Secretary of Veterans Affairs and after 2000 cite VA's Annual Accountability Report.

Figure 4.1 plots the number of veterans receiving disability and pension benefits from 1950 to 2006, and Figure 4.2 depicts real total spending by cohort or the product of the number of veterans and their cohort-specific average benefit in each year.[13] The figures suggest that the number of veterans in a given cohort who are receiving aid has historically peaked several decades after the war. For example, use by the largest and best documented cohort, World War II veterans, peaked around 1978, 33 years after the end of hostilities. The figures also show that the needs of World War I veterans appear to have peaked around 1965, 47 years after armistice. The pattern among veterans of the Korean War is less clear: the number of veterans receiving disability and pensions peaked around 1978, or 25 years after the war, but total real benefits appeared to plateau. The number of Vietnam veterans receiving disability and pensions and total real spending on their benefits are still rising, as are the number of veterans of the Persian Gulf War who receive disability and pensions.

[13]Real quantities are derived by deflating and inflating nominal totals to 2008 levels by using the Consumer Price Index.

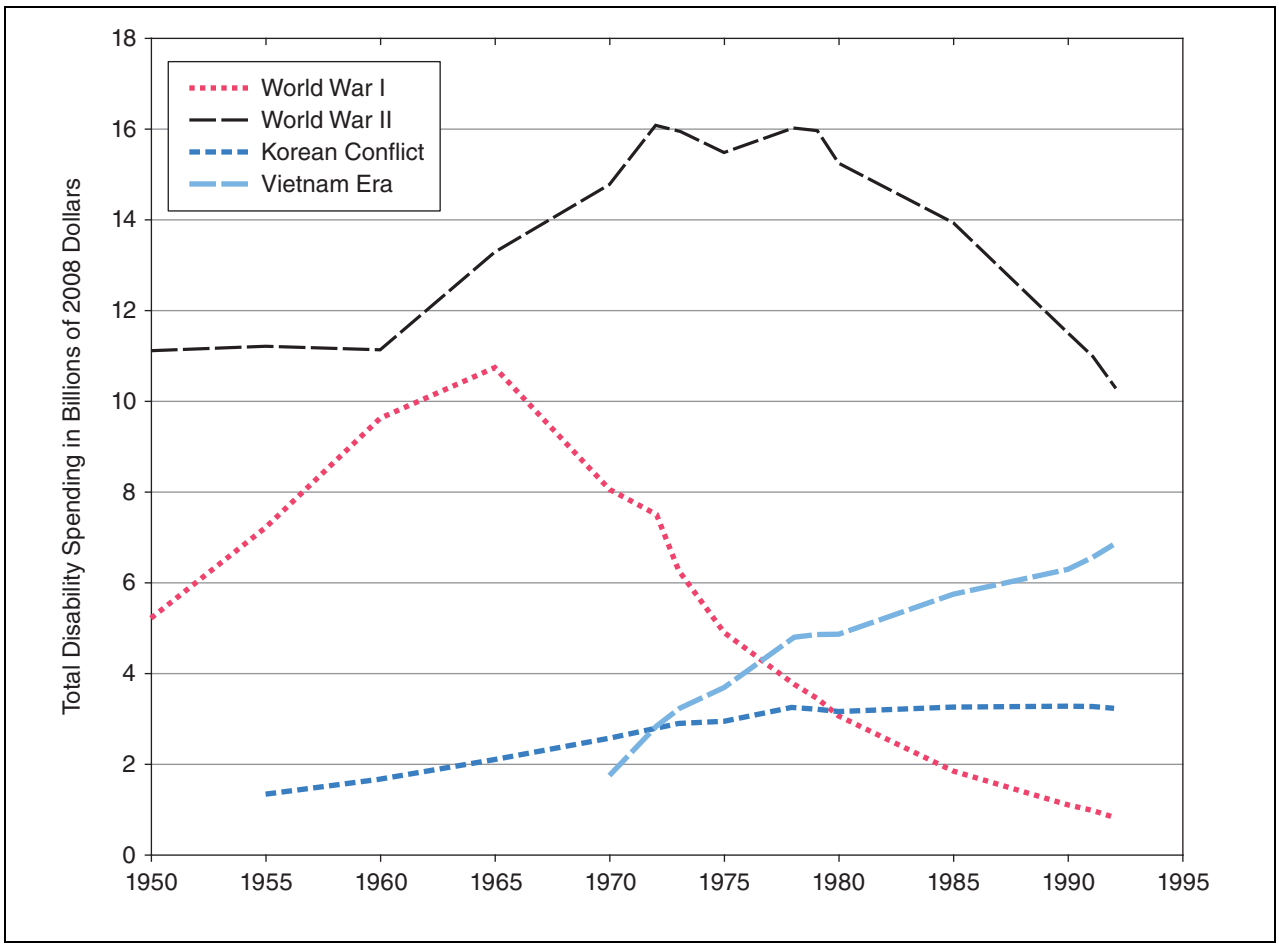

FIGURE 4.2 Total real spending on disability compensation and pensions for veterans by period of service.
NOTE: Each point represents real spending in 2008 inflation-adjusted dollars on members of the veteran cohort, constructed as the product of inflated nominal spending per veteran and the number of veterans receiving benefits in each year. Source data are derived from the US Census Bureau's Statistical Abstracts of the United States, 1970, Table 406; 1974, Table 534; 1980, Table 640; 1990, Table 569; 1995, Table 579; and 2008, Table 508, which up to 2000 cite the Annual Report of the Secretary of Veterans Affairs and after 2000 cite VA's Annual Accountability Report.

On the basis of data from past wars, Figures 4.1 and 4.2 strongly suggest that the total number of OEF and OIF veterans seeking government assistance for their service-related health-care and disability needs and the magnitude of public compensation for those needs will rise for many decades after the conclusion of the conflicts. As of 2008, 230,000 OEF and OIF veterans had filed disability claims. However, the majority of claims have yet to be submitted. Bilmes (2008) projects that a total of 791,000 veterans from the conflicts in Iraq and Afghanistan will seek disability benefits.

It should be noted, however, that the numbers are not perfectly indicative of the total burden of readjustment and coping needs of veterans and their families. Government spending on disability benefits and pensions approximates the magnitude of more latent sources of need—namely, the physical and psychologic effects of military service on veterans—but represents, in combination with direct medical costs paid by the government through VA or TRICARE, only the publicly compensated portion of the burden borne by veterans and their families. Missing

from this accounting method are the unknown social and financial burdens felt and paid by individual veterans and their households, as noted above—what economists refer to as social economic costs. For example, veterans' disability benefits explicitly do not compensate veterans for any pain and suffering associated with their service-connected disabilities (IOM, 2007; Stiglitz and Bilmes, 2008), and thus pain and suffering are burdens borne by individual veterans. The magnitude of such burdens is poorly understood.

Finally, the historical data do not account for the education, retraining, vocational, and other social needs of returning service members and veterans. Educational benefits, most notably the GI Bill, are a major means of helping veterans to reintegrate into civilian life. Researchers view the 1944 GI Bill as having vastly expanded the educational attainment of birth cohorts with high rates of military service in World War II and Korea (Bound and Turner, 2002; Stanley, 2003). The Post-9/11 Veterans Educational Assistance Act of 2008 expanded the GI Bill to cover OEF and OIF veterans; it went into effect in August 2009. Spending on education benefits is substantial when compared to spending on medical and disability benefits. In 2008, the CBO estimated that through this bill, the government would pay out over $50 billion in benefits over the next 10 years (Orszag, 2008), about 4 times higher than CBO's "high option" 10-year forecast of VA medical and disability spending (CBO, 2007b). The limited projection suggests that demand for veterans' education and vocational services accounts for a significant slice of benefits spending, and should be included in comprehensive long-term forecasts of overall readjustment needs of this population.

As noted in Chapter 3 of this report, while lessons learned from past conflicts can be informative, many unique aspects of OEF and OIF might result in significant deviations from historical trends. For example, advances in battlefield medicine have resulted in saving the lives of many severely wounded service members who in past conflicts likely would have died from their wounds. These survivors of very severe injuries need more intensive care than the most severely wounded service members from prior wars, implying that extrapolating from past conflicts might result in an underestimation of the overall burden of need for persons impacted by OEF and OIF. Furthermore, accelerated and lengthened overseas deployment, reduced dwell times between deployments, and repeated reintegration into life outside theater for the returning OEF and OIF service members and their families may result in additional burdens that are poorly understood, including higher rates of divorce, juvenile delinquency, or disruptions in communities that lose workers called up to National Guard or reserve units. Little is known about the incidence of those outcomes or their connection with wartime service, and even less is known about how the burden of need associated with those outcomes evolves over time and more research is vitally needed. The committee will more fully examine these potential and emerging burdens on veterans, their families, and communities in phase 2.

The public and Congress receive forecasts of veterans' programs very infrequently in the current system. The most consistently produced sets of formal projections are released by CBO, whose researchers sift through VA reports to the Office of Management and Budget to specify many of the key assumptions. At the time of writing of the present report, CBO has not publicly updated its forecasts in 2 years (CBO, 2007b). It appears that CBO does not have the personnel or funding to produce forecasts more frequently, and it is already charged by Congress with assessing a far wider array of government programs than those for veteran support. With CBO forecasts available only sporadically, it is difficult for outside observers to assess their quality or

the quality of private forecasts or, most important, to gain a clear, up-to-date picture of veterans' service needs.

VA does not have the personnel, the funding, or the mandate from Congress to produce broad forecasts of service needs. The VA actuary generates an annual actuarial forecast of limited scope for the disability payment system that appears in VA's Performance and Accountability Report, but there are no long-term forecasts of health-care use by the VA population. Meanwhile, the burden borne by wounded service members and their families, and thus the public responsibility to treat or compensate them, is large and probably will persist for the rest of their lives. Historically, as stated above, the peak demand for compensation has lagged the end of hostilities by 30 years or more, so the maximum stress on support systems for OEF and OIF veterans and their families might not be felt until 2040 or later. To produce timely, accurate, and transparent forecasts of veterans' needs and demands on the system, it is important to put into place mechanisms for anticipating the needs of veterans and their families so that the needs can begin to be met.

The committee recommends that Congress appropriate funds and direct the Department of Veterans Affairs to expand the role of its actuary to produce annual long-term forecasts of costs associated with all health and disability benefits consistent with the practices of Social Security and Medicare.

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5

THE CURRENT RESPONSE

This chapter briefly describes many of the programs that were in place prior to Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) or that have been developed specifically in response to the many challenges being faced by those returning from OEF and OIF and their families. While previous chapters and Appendix B allude to the many problems related to access to care, this chapter simply catalogues the available programs without any attempt to evaluate them. The chapter is divided into two main sections. The first section provides a structural overview of the Department of Defense (DOD) and the Department of Veterans Affairs (VA) health-care and benefits systems. The second section describes a sample of the federal programs and services that are available to meet the readjustment needs of returning OEF and OIF service members, veterans, and their families. The chapter does not present a comprehensive inventory of all available federal programs, nor does it present the numerous state and local programs that have been developed to meet the needs of these populations. Additionally, the committee did not explore services provided by private institutions, nor did it explore the feasibility of public-private partnerships. Those issues might be examined in the committee's phase 2 report.

OVERVIEW OF FEDERAL BENEFITS AVAILABLE TO SERVICE MEMBERS, VETERANS, AND THEIR FAMILIES

US troops are entitled to various benefits, such as health care, disability benefits, employment assistance, and education. This section describes the systems that are in place in DOD and VA to provide those benefits.

The Department of Defense

Most DOD programs designed to meet the needs of returning OEF and OIF military personnel are overseen by the Office of the Under Secretary of Defense for Personnel and Readiness (USD(P&R)). That office is responsible for ensuring the readiness of the total force, including oversight of health affairs, training, morale, welfare, and quality-of-life matters for the active-duty, reserve, and National Guard components and their dependents. Four USD(P&R) offices are responsible for those programs: the Office of the Assistant Secretary of Defense for Health Affairs (ASDHA), the Office of the Deputy Under Secretary of Defense for Military

Community and Family Policy, the Office of the Assistant Secretary of Defense for Reserve Affairs, and the Office of the Deputy Under Secretary of Defense for Military Personnel Policy.

Health Care

The ASDHA oversees the Military Health System (MHS), which encompasses the coordinated efforts of the medical departments of the Army, Navy, Marine Corps, Air Force, Coast Guard, and Joint Chiefs of Staff; the Combatant Command surgeons; and private-sector health-care providers, hospitals, and pharmacies (DOD Directive 5136.01, June 4, 2008). The primary goal of the MHS is to provide emergency and long-term casualty care and to maintain the health readiness of military personnel by promoting physical and mental fitness and healthy behaviors. In addition, the MHS ensures the delivery of health care to all DOD service members, retirees, and their families. To support all those activities, the MHS devotes substantial resources to education of its medical personnel and to research and development to advance military medicine (DOD, 2009; Task Force on the Future of Military Health Care, 2007).

The MHS provides direct care to most active-duty service members through military treatment facilities (MTFs) and clinics. The direct care is supplemented by care purchased from the civilian sector. Retirees and dependent family members (see Box 5.1) of active-duty service members are also eligible to receive care at an MTF on a space-available basis; priority is given to those enrolled in TRICARE Prime.[1] Worldwide, the MHS direct-care infrastructure includes 59 military hospitals, 413 medical clinics, and 413 dental clinics (TMA, 2009b), and employs over 44,000 civilians and 89,000 military personnel (Jansen, 2009). Responsibility for delivering health care to garrisoned and deployed troops remains with the health departments of the individual services—Army, Navy,[2] and Air Force—which also retain considerable autonomy in the management of their own facilities and personnel. Of some 9.3 million eligible beneficiaries, by 2010, 43% will be active-duty personnel and their dependents, and 57% will be retirees and their dependents (Jansen, 2009). In 2007, 41% of all DOD eligible beneficiaries used direct care, 19% used care purchased through the TRICARE provider network, 25% used Medicare providers, and 14% used other civilian provider networks or VA services. Active-duty personnel and their dependents relied more heavily on direct care and purchased care; 58% used direct care, 32% used purchased care, and 9% used other civilian care (Andrews et al., 2008).

DOD health benefits are delivered through the TRICARE program, which is available to active-duty and reserve-component members, military retirees, and their dependent family members under one of several plans. To enroll in any TRICARE plan, service members, their families, and retirees must first establish eligibility through the Defense Enrollment Eligibility Reporting System (DEERS). Active-duty and retired service members, including National Guard and reserve members activated for at least 30 days, are automatically registered in DEERS, but individual service members are responsible for registering their family members, updating their status, and ensuring that their information is current and correct (TMA, 2009c). Active-duty service members, including members of the reserve components activated for at least 30 days, are required to enroll in TRICARE Prime. Eligible service members may also enroll their dependent family members in TRICARE Prime, but dependents may choose to pay extra to enroll in TRICARE Extra, a preferred provider option–like benefit, or seek coverage through a

[1]TRICARE Prime is a point-of-service health-maintenance organization that covers 100% of care at MTFs or any civilian provider that is a member of the TRICARE network.
[2]The medical department of the Navy oversees health-care delivery for the Marine Corps.

civilian health-insurance provider. Members of the selected reserve[3] components who are not activated may choose to enroll themselves or their families in TRICARE Reserve Select, a premium-based option (Andrews et al., 2008).

Service members leaving the military and their dependents are usually eligible for transitional TRICARE coverage. Active-duty members leaving the military under other than adverse conditions and their dependent family members can receive 18 months of coverage through the Continued Health Care Benefit Program (CHCBP). Children and spouses who were enrolled in TRICARE and lose eligibility can receive CHCBP coverage for up to 36 months. Deactivated National Guard and reserve members who were called to active duty for at least 30 days and separating active-duty members who do not qualify for the CHCBP are usually eligible to receive health-care coverage for 180 days through the Transitional Assistance Management Program (TMA, 2009d).

BOX 5.1

Family in the Military Context

Multiple definitions of *family* operate in the Department of Defense (DOD), each tied to specific regulatory requirements. The most common definition defines eligibility for military identification cards, which are necessary for access to health care, military exchanges, and a variety of supportive services for families. Military identification cards are currently issued to spouses and unmarried children of service members, with exceptions and additional categories defined by children's ages, student status, or special needs and by whether the marriage ends in divorce or in death of the service member while on active duty. Spouses and unmarried children of reserve-component members are covered while the service member is on active duty for more than 30 consecutive days (TMA, 2006). Stepchildren may or may not qualify for military identification cards, depending on such factors as age, student status, and the circumstances of the biologic parents.

Other military programs have adopted more inclusive definitions of *family*. For example, the Yellow Ribbon Reintegration program permits participation by service members' spouses, children, parents, grandparents, siblings, and significant others (USD(P&R), 2008). In light of the fact that only about half of military members are married, new rules recently issued for the Family and Medical Leave Act expand previous definitions of family caregivers to include adult children's parents and other kin (US Department of Labor, 2009a).

In practice, some family members do not receive supportive services even when policy permits it. For example, the DOD Task Force on Mental Health (2007) recognized that military family members have difficulty in obtaining treatment for some psychologic health problems because of gaps in provider networks. In addition, families that do not conform to military definitions may have difficulty in obtaining needed services. For example, grandparents who move to military installations to care for children during parents' deployment may have difficulty in obtaining access to military services, and this can be especially challenging in overseas locations.

[3]The selected reserve includes those members of the ready reserve who train throughout the year and participate in annual active-duty training exercises. The individual ready reserve and the inactive National Guard form the other two components of the ready reserve.

The MHS must meet statutory access standards for its TRICARE beneficiaries. The wait time for an appointment must be less than 4 weeks for a well-patient visit or a specialty-care referral, less than 1 week for a routine visit, and less than 24 hours for an urgent-care visit.[4] The MHS tracks access to care metrics for all its beneficiaries and releases monthly reports.[5] In addition to frequent periodic performance reports, TRICARE presents annual reports to Congress, in which TRICARE beneficiary access is compared with civilian benchmarks. In general, TRICARE beneficiaries report lower satisfaction with their health care than their civilian counterparts (60.0% versus 72.6% in FY 2008, when respondents were defined as satisfied if they rated their health care at 8 or higher on a 10-point scale) (TMA, 2009a); and active-duty service members and their families report lower satisfaction with their ability to obtain care than their retired counterparts (64% versus 72% reporting that obtaining care is "not a problem") (Task Force on the Future of Military Health Care, 2007; TMA, 2009a).

Disability-Benefits Process

Disability benefits are provided if an injured service member qualifies. If it can be reasonably determined that a service member is not fit to resume normal duty, the service member is referred to the Medical Evaluation Board (MEB) (Task Force on Returning Global War on Terror Heroes, 2007). The MEB, composed of one or more medical officers, decides, on the basis of medical evidence and DOD guidance and regulations, whether the member meets the standards for being retained on active duty. Decisions by the MEB take a standard 30 days. If it decides that the member does not meet retention standards, he or she is referred to the Physical Evaluation Board (PEB), which includes at least one medical officer and one personnel officer. Within 40 days, the PEB decides whether the member is fit for duty, should be placed on temporary disability retired status, or should be separated with or without benefits (Figure 5.1). Military personnel who are discharged without benefits from DOD may still apply for disability benefits through VA (as discussed later in this chapter).

Health-Information System

The success of any health-care system rests not only on its physical infrastructure and care providers but on how it collects, maintains, transfers, and processes health information, especially patient records. Because of the diverse and often adverse environments in which the MHS is responsible for providing care, DOD faces many challenges in tracking and maintaining health records for all its personnel.

[4]CFR §199.17(p)(5)(ii).
[5]Available on the TRICARE Operations Center Web site, http://mytoc.tma.osd.mil/AccessToCare/TOC/ATC.htm (accessed January 15, 2010).

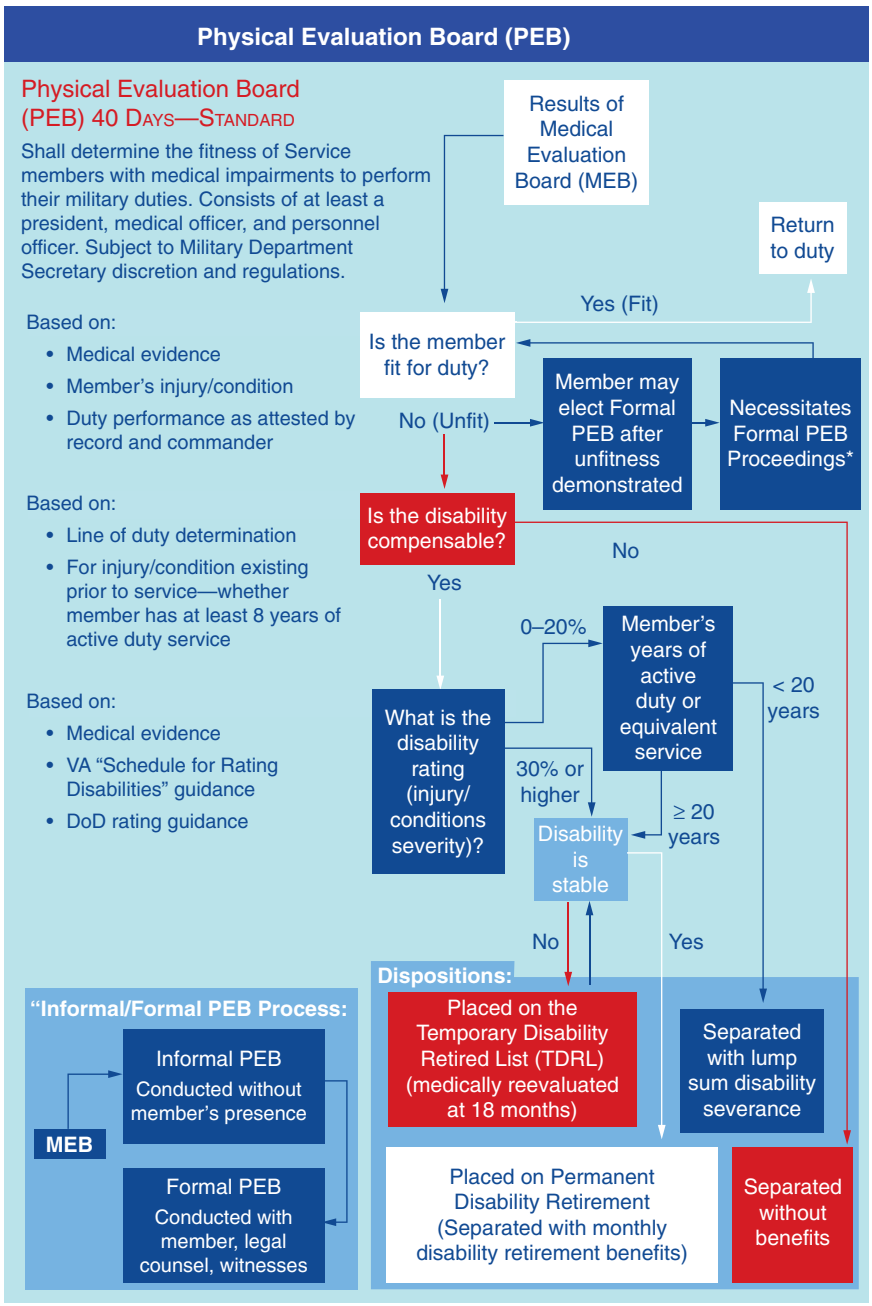

FIGURE 5.1 Physical Evaluation Board process.
SOURCE: Reproduced from VA Task Force on Returning Global War on Terror Heroes (2007).

DOD's heterogeneous mixture of medical records and health-information databases presents a structural challenge in implementing an effective health-information system. Historically, each MTF has maintained its own individual health database; in addition, information on ancillary services—including pharmaceutical, laboratory, and radiology—is usually entered into a system separate from inpatient documentation, so two separate databases must be merged to create a unified patient medical record (Fravell, 2007). Further complicating the system is the difficulty inherent in transferring medical records from combat zones to

stateside providers. The telecommunication infrastructure in combat zones may be insufficient to support a Web-based electronic medical record in those areas, and this requires transfer of records, some of which might be on paper, from database to database. The more often records must be transferred, merged, and reformatted, the greater the risk that patient health information will be lost or not transferred in a timely manner (Fravell, 2007).

In addition to those structural challenges, DOD must ensure compliance with record-keeping requirements. Before the current conflicts began, the FY 1998 National Defense Authorization Act already required that DOD establish a medical tracking system for all service members who were deployed overseas, including predeployment and postdeployment medical examinations. The law also stipulated that records of the medical examinations be stored in a centralized location, and it called for DOD to put in place a quality-assurance program to ensure compliance. Although DOD is required by statute to collect health information through predeployment and postdeployment assessments, it lacks sufficient oversight to ensure full compliance with the requirement. For example, in 2007 the Government Accountability Office (GAO) found that "DOD is not well-positioned to determine or assure Congress that active and reserve component service members are medically and mentally fit to deploy and to determine their medical and mental condition upon return" (GAO, 2007a). Compliance with requirements to complete predeployment and postdeployment health assessment is a particular issue in the National Guard and reserve components, which typically do not maintain a cohesive unit structure on return from deployment (GAO, 2007b).

The lack of unified electronic medical records in DOD has impeded record-sharing with VA. Because of incompatibility between the DOD and VA systems, when service members separate from the military and enter VA, their DOD health records do not transfer to VA providers. Several groups have recommended that DOD and VA develop a system that allows for medical record-sharing (GAO, 2008a; Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2008; Task Force on Returning Global War on Terror Heroes, 2007), and efforts to develop cooperative information-sharing and interoperability of medical records between DOD and VA have been going on for over a decade (GAO, 2008a). GAO finds that coordination between VA and DOD to provide medical information[6] in real time is still lacking (GAO, 2008a,b). Although the departments have mounted initiatives to improve coordination (for example, the Bidirectional Health Information Exchange), a true system-wide electronic exchange of patient records remains elusive. DOD and VA are working to create a joint virtual lifetime electronic record that will track administrative and medical information for every service member for life, beginning on the day that the member enters military service (White House Office of the Press Secretary, 2009); it is unclear how long it will take to realize this goal.

The Department of Veterans Affairs

VA is composed of three main branches: the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA), and the National Cemetery Administration. As a single entity, VA has the goal of providing health-care services, disability compensation, pensions, education assistance, home-loan assistance, life insurance, vocational rehabilitation and training,

[6]In 1998, President Clinton issued a directive requiring VA and DOD to develop a computer-based patient record system that would efficiently exchange information between the departments.

and burial benefits to veterans and their families (VA, 2009g). As of 2008, VA employed a total of 288,658 to serve the 23.8 million veterans in the United States; Vietnam veterans made up the largest fraction: 33%, or 7.9 million veterans (VA, 2009d). Of the 23.8 million, 2.1 million (7.5%) were women. The total number of dependents, including children and spouses of living and deceased veterans, was 37 million.

Health Care

VHA is the largest component of VA and provides medical and rehabilitation services to veterans; it employed about 96,000 health-care professionals in FY 2008. It also provides medical training to medical students, residents, fellows, and other health-care providers. In FY 2009, Congress appropriated $44.5 billion to VHA for health care and research; this was 45% of VA's total obligations of $98.7 billion. According to data from FY 2008, there were 7.84 million VHA enrollees—about 30% of the veteran population (IOM, 2009; VA, 2009d). As of March 2008, over 868,000 OEF and OIF service members (including National Guard and reserves) had left active duty and became eligible for VA services (GAO, 2008c). From October 2001 to January 2009, 425,538 (49%) OEF and OIF veterans enrolled in the VA system (63% from the Army, 13% Marine Corps, 12% Air Force, and 12% Navy). Of those veterans, 53% were in the active component, and 47% were in the reserve component. About 48% of the veterans are single, 45% married, 5% divorced, and 2% widowed (data provided by VA on request by the committee, September 2009).

Eligibility and Enrollment

Before January 2008, combat veterans were typically eligible for benefits and health care for only 2 years after discharge. However, with the enactment of the National Defense Authorization Act (PL 110-181), veterans who served in a combat theater (including National Guard and reserves) after November 11, 1998, and were discharged or released for reasons other than dishonorable on or after January 28, 2003, now have 5 years from their date of discharge to enroll in and obtain health-care coverage from VA. That includes all OEF and OIF veterans. Determination of enrollment eligibility is made through an eight-step process (Figure 5.2), which begins when the veteran[7] completes and submits the Application for Health Benefits (VA Form 10-10EZ). In 7–10 days, a decision letter is sent to the veteran stating his or her enrollment eligibility (Task Force on Returning Global War on Terror Heroes, 2007). Effective January 28, 2003, OEF and OIF veterans who enroll within the first 5 years after separating from the military are eligible for enhanced enrollment placement into priority group 6 (see Chapter 2, Table 2.5) for 5 years after discharge. Injuries or conditions related to combat service are treated by the VA health-care system free of charge.

[7]Some veterans are exempt from enrollment requirements if they meet particular criteria: a service-connected disability rating of at least 50%, discharge from military service less than 1 year ago because of a service-connected disability that VA has not yet rated, or the veteran is seeking VA care for a service-connected disability only (Panangala, 2007).

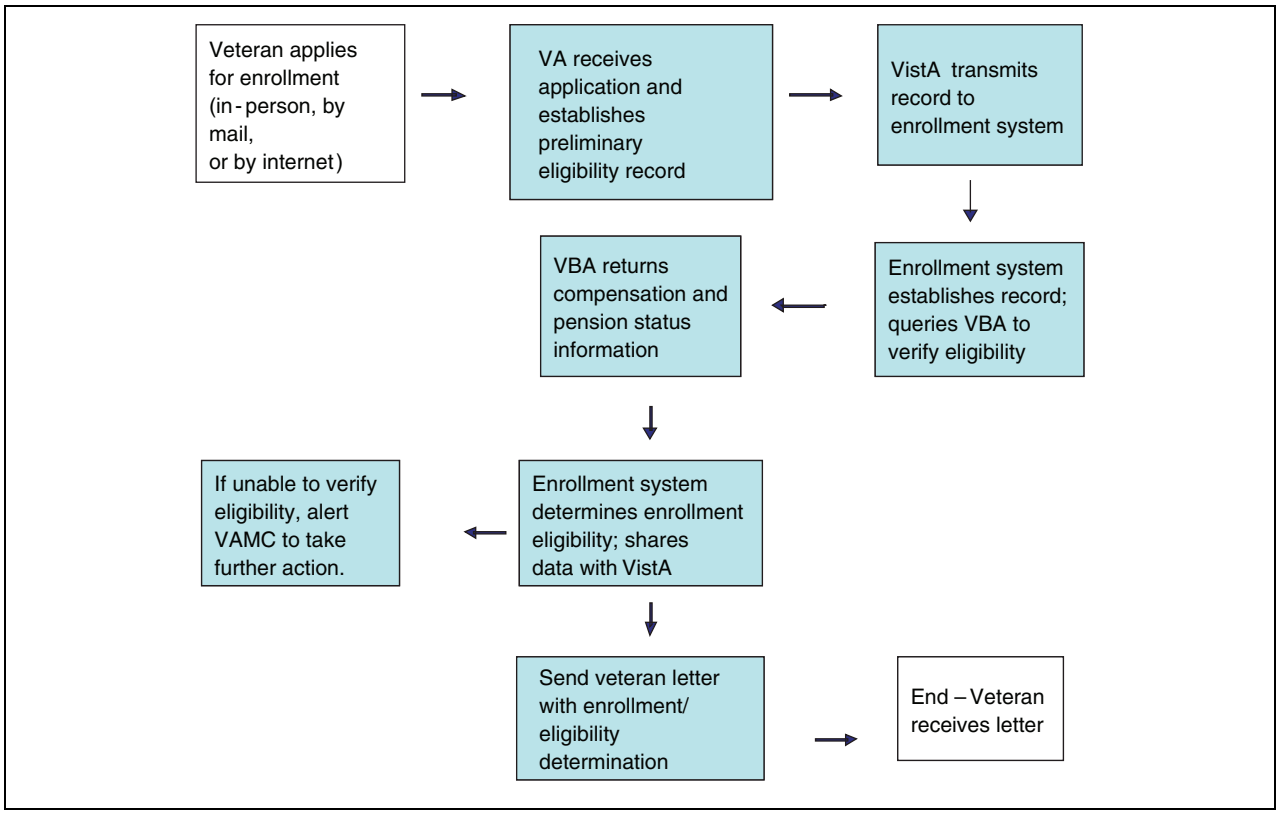

FIGURE 5.2 VA health-care enrollment process.

NOTE: VistA = Veterans Health Information Systems and Technology Architecture[8]; VAMC = VA medical center.
SOURCE: VA Task Force on Returning Global War on Terror Heroes (2007).

After the designated 5 years, enrolled veterans are placed in the appropriate priority group (see Table 2.6) on the basis of income and disability; placement determines the extent of coverage and copayment amounts. Each year, VA determines whether appropriations are adequate to cover all priority groups; if not, those in the lowest groups may lose coverage (Panangala, 2007; VA, 2008a).

On July 1, 2009, the VA Health Resource Center began an outreach campaign to increase awareness of VA eligibility, enrollment procedures, and benefits for recently discharged OEF and OIF veterans and their families (VA, 2009h).

In general, VHA does not provide health-care services or coverage to spouses or dependents of veterans (IOM, 2009; VA, 2009d). However, in accordance with the Veterans' Mental Health and Other Care Improvements Act of 2008 (S. 2162, 110th Congress), if VA services, such as marriage and family counseling or mental health care, are necessary for the proper treatment of a veteran, various family members will have access. Previously, family

[8]The success of VHA has been attributed partially to the use of a single, integrated health-information system, the Veterans Health Information Systems and Technology Architecture (VistA). Starting in 1985, the system, used at all health-care facilities, allows a patient's comprehensive clinical and administration information to be accessed at any VA health-care location. A notable component of VistA is the Computerized Patient Record System, which allows a health-care provider to view a patient's full medical record, including active problems, current and past medications, hospitalizations, clinical history, electronic medical chart and imaging information, and other components vital to managing a patient's care (Panangala, 2007).

members were allowed to take part in such services if they were initiated during a veteran's hospitalization and continued only if necessary for hospital discharge.

VA may provide health-care benefits to spouses and children of veterans in a few select circumstances through the Civilian Health and Medical Program, in which VA shares the costs of medically or psychologically necessary health-care services with eligible beneficiaries. To use that program, one cannot be eligible for TRICARE and must meet the following criteria: be a spouse or child of a veteran who is rated permanently or entirely disabled because of a service-connected injury or be a surviving spouse or child of a veteran who died from a VA-rated service-connected disability or in the line of duty (most are eligible for and use TRICARE in the latter circumstance) (VA, 2009i).

Veterans Integrated Service Networks

Health care is delivered through the 23 geographically divided veterans integrated service networks (VISNs), which manage 153 VA medical centers (VAMCs), 765 community-based outpatient clinics, and 230 vet centers (see Table 5.1) (VA, 2009d). The various components provide a wide spectrum of medical services, including inpatient and outpatient care, rehabilitation and mental health care, complex specialty care, and pharmaceutical benefits and distribution. They are each managed by a VISN director who reports to the deputy under secretary for health for operations and management (IOM, 2009). Veterans who qualify (see Table 2.5) can get care on a fee-for-service basis.

TABLE 5.1 Veterans Integrated Service Networks and Numbers of Facilities[a]

VISN	Hospitals and Medical Centers	Community-Based Outpatient Clinics	Other Outpatient Clinics	Vet Centers	Other Facilities[b]
VISN 1: New England	11	18	0	21	0
VISN 2: Upstate New York	6	29	0	6	0
VISN 3: New Jersey, New York	8	28	0	12	1
VISN 4: Stars and Stripes	12	47	0	13	0
VISN 5: VA Capitol	5[c]	15	0	9	0
VISN 6: Mid-Atlantic	8	13	5	10	—
VISN 7: Southeast	9	31	3	9	0
VISN 8: Sunshine	8[c]	39	8	19	2
VISN 9: Mid-South	9	30	6	11	0
VISN 10: Ohio	5	29	3	6	0
VISN 11: Partnership	8	23	22	9	0
VISN 12: Great Lakes	7	0	33	9	0
VISN 13 and 14: now 23	—	—	—	—	—
VISN 15: Heartland	9	42	1	7	0
VISN 16: South Central	11	32	14	13	0
VISN 17: Heart of Texas	7[c]	18	11	9	0
VISN 18: Southwest	7	41	1	14	0
VISN 19: Rocky Mountain	6[c]	37	2	14	0
VISN 20: Northwest	9[c]	26	1	15	2

VISN	Hospitals and Medical Centers	Community-Based Outpatient Clinics	Other Outpatient Clinics	Vet Centers	Other Facilities[b]
VISN 21: Sierra Pacific	8	9	26	20	0
VISN 22: Desert Pacific	5	29	5	11	1
VISN 23: Midwest	12	40	3	14	0
Total	170	576	144	251	6

[a]As of April 10, 2009.
[b]Includes domiciliaries, federal hospitals, rehabilitation facilities, posttraumatic-stress-disorder clinics, and care facilities.
[c]Includes at least one VA health-care system in addition to the medical centers.
SOURCE: IOM (2009). Adapted from VA (2009b).

Veterans Affairs Medical Centers

The medical centers, in addition to providing clinical care for acute conditions, provide a variety of other programs specifically tailored to OEF and OIF veterans and their families, including polytrauma treatment, rehabilitation, postdeployment counseling, mental-illness programs, and education sessions (GAO, 2008c). Every medical center uses a care-management team, case managers, and transition patient advocates who help arriving OEF and OIF veterans to navigate through the VA health-care system and coordinate present and long-term care (VA, 2009k).

Vet Centers

The Vet Center Program, known formally as the Readjustment Counseling Service, was established by Congress in 1979 to provide services to Vietnam veterans who were still experiencing substantial readjustment challenges. Since then, vet-center eligibility has been extended to combat veterans of other conflicts, including most recently in 2003 to all OEF and OIF veterans and their family members and federally activated National Guard and reserve personnel. Vet centers are community-based nonmedical VA facilities that offer access to a broad array of social services for veterans and their families. Examples of services offered are individual and group counseling, marital and family counseling, medical referrals, assistance in applying for VA benefits, employment counseling and referral, alcohol and drug assessments, information regarding community resources, military sexual-trauma counseling and referral, and community outreach and education. Bereavement counseling is available for surviving family members of veterans who lost their lives while on active duty (VA, 2009l).

As of April 2009, there were 230 vet centers; they are located in every state, Puerto Rico, Guam, and the US Virgin Islands (VA, 2009d); 23 of the centers were added in 2007 and 2008[9] (Panangala, 2007), and VA plans to bring the total number to 299 by the end of 2010 (VA, 2009c). Most vet centers are staffed by one or two full-time counselors and are managed by a team leader who reports directly to one of the seven regional counseling-service managers, who in turn reports to the chief readjustment-counseling officer at VA headquarters (Panangala, 2007).

[9]Site selections are approved through the Office of the Under Secretary of Health after review of US Census Bureau and Defense Manpower Data Center demographic data.

The committee heard anecdotal reports (see Appendix B) that OEF and OIF veterans view vet centers as places for older veterans, particularly from the Vietnam War, that are not equipped to meet the needs of the younger generations. To connect with returning troops better, starting in 2004 the vet centers hired 100 OEF and OIF veterans as outreach workers and have focused efforts on or near active military out-processing stations and at National Guard and reserve sites. Beginning in October 2008, VA also introduced a fleet of 50 mobile vet centers—38-foot motor coaches that have spaces for confidential counseling—to supplement the existing vet centers and to expand service to veterans in geographically dispersed rural areas (VA, 2008b, 2009c). From the start of hostilities in 2001 through the end of 2008, vet centers received over 85,000 veterans for in-center visits and contacted an additional 260,000 at outreach events (Frame and Batres, 2009).

Disability Compensation and Survivor Benefits

The Disability Compensation Program provides monetary benefits to eligible veterans who were injured or exacerbated an injury during active duty; compensation amounts are based on individual disability ratings (from 10 to 100%) (VA, 2009m). As of March 31, 2009, 3 million veterans were receiving disability compensation, of whom 268,926 had a 100% disability rating; 69% of those who filed claims received service-connected–disability compensation (VA, 2009d). In addition, the Veterans Pension Program is offered to veterans who are over 65 years old or fully and permanently disabled because of active-duty service and whose family income is below a set threshold that is modified each year (VA, 2009n).

In an effort to expedite claims processing and to ensure that veterans are covered at time of discharge, VA offers a predischarge program, which allows service members to apply for disability compensation up to 180 days before discharge or retirement from active duty. In addition, on December 2008, VA began a 1-year program, implemented in 10 regional offices, called the Fully Developed Claim Pilot Program to test the feasibility of processing compensation, burial, and survivor benefits within 90 days of receiving a completed claim. In 2007, the average time for finalizing disability claims for OEF and OIF veterans was 110 days (VA, 2009d).

Surviving spouses and dependents are generally eligible for death pension benefits if family income does not exceed a specified amount. In addition, Dependency and Indemnity Compensation is a tax-free monthly paid benefit based on such factors as income and number of dependents. Numerous state benefits are also available and vary by geographic location. In addition, family members of deceased service members and veterans have access to such programs as the Vocational Rehabilitation and Employment Services, education assistance, Home Loan Guaranty, Vet Center Bereavement Counseling, and a life-insurance settlement (VA, 2009o).

The Tragedy Assistance Program for Survivors (www.taps.org), founded in 1994, is the most comprehensive online resource for those dealing with the loss of a service member. Resources are provided in the form of pamphlets and publications, an online support community, seminars and other events, and information on finding regional support groups. Because of its partnership with VA, it also provides information on obtaining bereavement counseling at local vet centers.

Overview of Programs and Services for Operation Enduring Freedom and Operation Iraqi Freedom Active-Duty Service Members, Veterans, and Their Families

Since the start of OEF and OIF, the federal government has expanded programs and treatment facilities to focus specifically on the continuing care of service members who are severely wounded or injured or become ill while in theater. For example, the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) was created in 2007 in response to the growing prevalence of traumatic brain injury (TBI), posttraumatic stress disorder (PTSD), depression, and other mental health problems in the military and veteran populations (www.dcoe.health.mil). Other centers that have been initiated include the Deployment Health Clinical Center, the National Center for Telehealth and Technology, the National Intrepid Center of Excellence, and the Center for Deployment Psychology. The goals of those centers are, respectively, to improve deployment-related health; to develop new technologies to prevent and treat people for psychologic health problems and TBI; to provide advance care and treatment for military personnel who have PTSD, complex psychologic health issues, or TBI; and to educate military and civilian behavioral health professionals about mental health needs peculiar to deployment. As noted earlier, this section does not provide a comprehensive list of all federally available programs, nor does it provide information on programs that are available at the state and local levels; rather, it highlights programs that are available to OEF and OIF service members, veterans, and their families through DOD, VA, and other federal agencies. It is subdivided by programs that provide long-term care and rehabilitation for physical needs, programs that provide mental health care, and programs for social needs.

Programs for Physical Needs

As described in Chapter 4, an increasing number of seriously wounded service members are returning from OEF and OIF. Those veterans have severe injuries—such as TBI, amputation, spinal-cord injury, and severe burns—and in some cases polytrauma. DOD and VA have expanded on and created programs to provide long-term care to treat and rehabilitate those severely wounded warriors.

In combat zones, medically trained military personnel administer immediate life-saving care to severely wounded service members until they can be evacuated to a forward surgical team, each comprising four surgeons. In Iraq and Afghanistan, the forward surgical teams have been deployed closer to the front lines than in past conflicts, and they provide emergency surgical intervention until casualties can be evacuated to a combat support hospital. From the combat support hospital, patients may be evacuated to one of three regional military hospitals in Kuwait, Spain, or Germany or in some cases evacuated directly to treatment facilities in the United States; MTFs that specialize in treatment of severely wounded service members include the Army's Walter Reed Army Medical Center[10] in Washington, DC, the National Naval Medical Center in Bethesda, Maryland, and the Brooke Army Medical Center in San Antonio, Texas, which specializes in treatment for burns (Henning, 2007).

[10]It is expected that by 2011 Walter Reed Army Medical Center will have been combined with the National Naval Medical Center to form the Walter Reed National Medical Center.

Wounded Warrior Support

Each service, in 2004–2005, has independently established its own Wounded Warrior Support Program. The programs conduct outreach to eligible severely injured and ill service members, who once enrolled are assigned case managers to assist them and their families through all phases of recovery, rehabilitation, and reintegration into active duty or civilian life (details of each program are presented below). A report from the Congressional Research Service has noted that DOD has not issued a directive or instruction to delineate responsibility among the services, coordinate complementary services, set eligibility criteria, or define standardized metrics to evaluate program effectiveness and identify overlaps, excesses, or gaps (Henning, 2007). However, several programs have been introduced to promote coordination or at least to provide other routes through which service members and their families can access care and services. For example, the Military Severely Injured Center (MSIC), established in 2005, staffs a 24-hour toll-free hotline for severely injured service members and their families (Henning, 2007). In addition, in 2008, Military OneSource (see discussion below)—which provides information and referrals to fully confidential nonmedical counseling sessions for individuals, couples, and families—launched the Wounded Warrior Resource Center (WWRC), which is accessible by e-mail, by telephone, and through the Military OneSource Web site. The MSIC and the WWRC do not replace or standardize service-specific wounded-warrior programs but rather serve as additional points of contact to help military families to connect with existing sources of care.

Army Wounded Warrior Program

The Army Wounded Warrior Program was established in 2004 as the Disabled Soldier Support System and has since been included as a component of the Army Family Covenant. The program provides individualized rehabilitation and recovery support to severely injured and ill soldiers and their families. Eligibility requires one of the following conditions: severe injury (such as an amputation) or paralysis; permanent and unsightly disfiguration (for example, of the face or hands); incurable, fatal disease and limited life expectancy; established psychiatric condition or release from service for a psychiatric condition; or another condition requiring extensive treatment or hospitalization (Army Regulation 40-400, March 12, 2001). Each program staff member advocates for about 30 wounded warriors, assisting them to secure benefits; navigate such potentially difficult issues as pay, promotion, and family travel; and deal effectively with the MEB, the PEB, and program offices in VA and the Department of Labor (DOL). The Army Wounded Warrior Program works closely with the Army Career and Alumni Program to encourage soldiers to continue on active duty (DOD Task Force on Mental Health, 2007; Henning, 2007).

Navy and Marine Corps Wounded Warrior Programs

The Navy Safe Harbor program was created in 2005 to provide assistance and support to severely injured sailors and their families, particularly those wounded in OEF and OIF. Eligibility extends to sailors who were seriously injured while shipboard or in accidents while on liberty, and it includes sailors who have serious illnesses, whether physical or psychologic. The program tracks all severely wounded, ill, and injured sailors and reaches out to eligible persons; nonmedical case managers are assigned to seven major MTFs and three VA polytrauma centers. Sailors enroll in the program for life or for as long as they have need of the services. Navy Safe Harbor representatives contact their charges at least once per month and connect enrollees and

their families to resources and services available for their particular needs. In addition, case managers help sailors to maintain contact with their commands and units. For sailors assigned to Marine Corps units, Navy Safe Harbor collaborates with Marine For Life (Task Force on Returning Global War on Terror Heroes, 2007). Enrollees in Safe Harbor average around 5,000–6,000, and about 350 sailors enrolled in 2008 (Watkins, 2008).

The Marine Corps Wounded Warrior Regiment was formed in 2007 through the consolidation of the Wounded Warrior Barracks at Camp Lejeune (created in 2004) and the Marine for Life Ill and Injured Support Section (2005). The Wounded Warrior Regiment provides and facilitates assistance to wounded marines, sailors attached to or in support of Marine Corps units, and their families throughout the recovery process; the stated mission is to ensure that every marine is able to transition back into his or her community successfully. The Wounded Warrior Regiment is headquartered at Quantico, Virginia, and battalions are at Camp Pendleton, California, and Camp Lejeune, North Carolina. The regiment provides non-medical care management, such as chaplains for spiritual support, liaisons to address VA benefit and transition issues, and job-transition support by a DOL professional (Marine Corps Wounded Warrior Regiment, 2009). The regiment Web site (www.woundedwarriorregiment.org) offers news, information, and useful links related to particular injuries, benefits, helpful organizations, and the recovery process, as well as issues that service members and their families may face along the way.

Air Force Wounded Warrior Program

The Air Force Wounded Warrior program (www.woundedwarrior.af.mil) provides information and resources to wounded, ill, and injured airmen and their families. The Wounded, Ill and Injured Compensation and Benefits Handbook (DOD and VA, 2008) is designed to help service members and their families to understand and take advantage of the services available to them. The Air Force Wounded Warrior program works hand-in-hand with the Air Force Survivor Assistance Program and the Airman and Family Readiness Centers to ensure support and care from the point of injury to at least 5 years after separation or retirement. The Air Force Wounded Warrior program also provides professional services—such as transition assistance, employment assistance, moving and financial counseling, and emergency financial assistance—and further coordinates benefit counseling and services provided by DOD and other agencies, such as VA, DOL, the Social Security Administration, and TRICARE.

Polytrauma System of Care

In addition to the medical centers and wounded-warrior programs provided by DOD, VA provides care to severely wounded service members and veterans through the Polytrauma System of Care (Table 5.2), which was created in 2004 (Henning, 2007). The Polytrauma System of Care provides different levels of rehabilitation services that are coordinated through a case manager. The case manager works with each service member and his or her family throughout the various phases of the stay and recovery to coordinate clinical care and consultations with psychologists and neuropsychologists and to create transparency regarding available services. As of April 2007, the system had treated over 350 inpatient OEF and OIF service members (VA, 2009f).

TABLE 5.2 Polytrauma System of Care

Level		No. Locations
1	Polytrauma rehabilitation centers	4
2	Polytrauma network sites	22
3	Polytrauma support clinics	80
4	Polytrauma point of contact	N/A

SOURCE: Rehabilitation Outcomes Research Center (2007).

The four level 1 polytrauma rehabilitation centers (PRCs) (Figure 5.3) are in Palo Alto, Minneapolis, Tampa, and Richmond; a fifth is scheduled to open in San Antonio in 2011 (VA, 2009f). The PRCs are designed to coordinate the transfer of polytrauma patients from the MHS to VA and to provide continuing acute, comprehensive, and interdisciplinary inpatient rehabilitative care. VA social workers assigned to MTFs by the Office of Seamless Transition are responsible for maintaining communication between MTF and VA health-care providers during the transfer. Both VA case managers and military liaisons placed at each PRC assist with logistical arrangements for family members, and clinical psychologists are on hand to provide counseling, education, and other support services. The PRCs also have training apartments where rehabilitation staff members are available to prepare and inform family members about the needs and necessary adjustments for the home environment before patient discharge (VA, 2009f).

Since 2004, VHA has added 22 level 2 polytrauma network sites, at least one in each VISN (Rehabilitation Outcomes Research Center, 2007). Case managers at the sites provide continuing postacute care, manage existing and newly emerging conditions, and continue rehabilitation work after discharge from a PRC (VA, 2009f).

The third level of care consists of 80 polytrauma support clinics, which are staffed by teams of rehabilitation providers who manage the long-term effects of polytrauma through outpatient care and consultation; they also attend to followup home visits. The final level is the polytrauma point of contact, which provides continuing support to those who have stable treatment plans (Rehabilitation Outcomes Research Center, 2007).

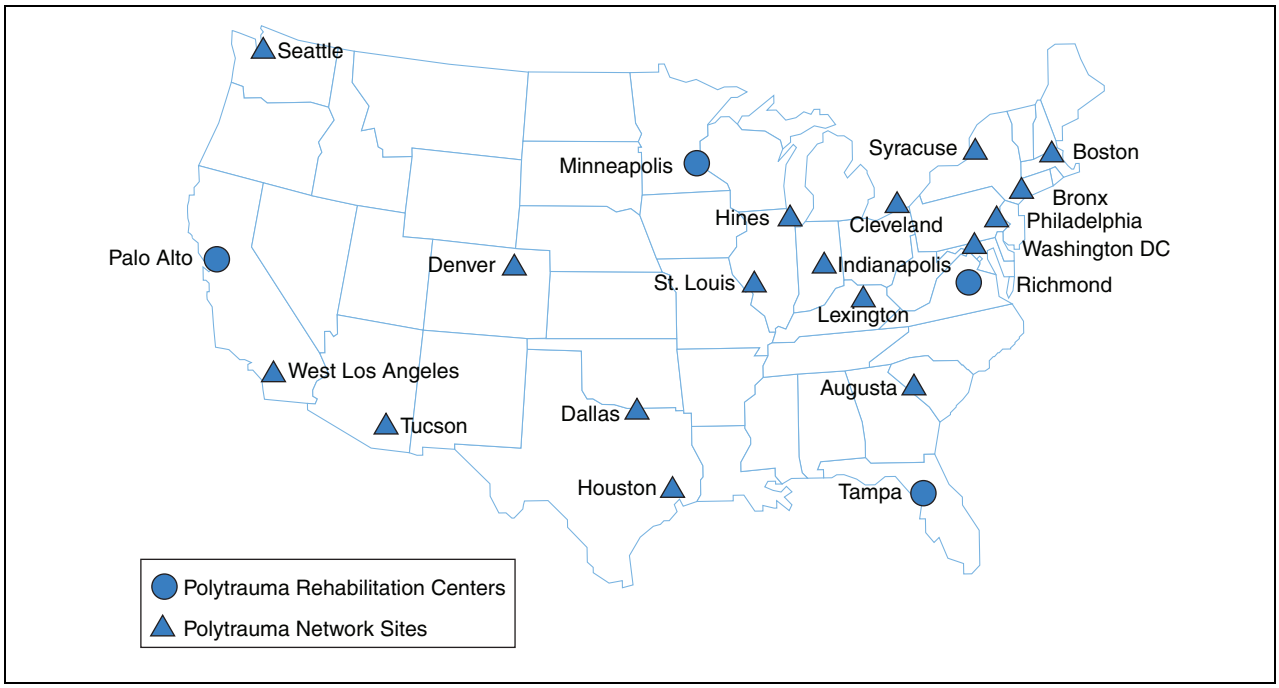

FIGURE 5.3 Polytrauma facility locations (levels 1 and 2).
SOURCE: VA (2009p).

Programs for Mental Health Needs

As described in Chapter 4, a high prevalence of mental health issues in OEF and OIF service members and veterans is being reported. This section describes the programs and services that respond to that need. In particular, it describes DOD and VA programs directed at prevention and early identification of mental health problems (such as PTSD), substance abuse, and suicide prevention. DOD provides many independent programs and services, which are administered through multiple agencies and funding sources, to provide psychologic services to the military community. The result is a system in which military personnel can access help through multiple channels that are different but that often overlap. As the DOD Task Force on Mental Health (2007) noted, "non-centralization is in many ways a good thing: it promotes higher participation and awareness of mental health needs across DOD, and offers indirect avenues to care for those who may find more direct routes impractical or unpalatable." The task force also notes, however, that "while the multiplicity of programs, policies, and funding streams provides many points of access to support for psychological health, they may also lead to confusion about benefits and services, fragmented delivery of care, and gaps in service provision" (DOD Task Force on Mental Health, 2007). To protect against those potential gaps in care, the task force reinforced the notion that maintaining psychologic readiness for the US fighting force requires DOD to provide mental health services across the full continuum of military life. To encompass that continuum, the task force envisioned a three-tier system of care (DOD Task Force on Mental Health, 2007): prevention, identification and intervention, and treatment and reintegration.

According to the task force, such a system would be more compassionate and economical than focusing solely on treatment for serious mental diseases after they have developed. However, to implement such a comprehensive mental health–care system successfully, DOD

must address two major barriers: wide geographic dispersion and frequent transitions make it difficult for many service members and their families, especially in the National Guard and reserve components, not only to learn about and access care but to complete treatment that requires many clinical visits over an extended period; and the stigma commonly associated with accessing mental health care continues to prevent many service members from seeking help (DOD Task Force on Mental Health, 2007).

In response to the increasing need for and to overcome those obstacles to care, DOD has expanded its capacity and introduced new programs. To address the growing prevalence of TBI, PTSD, depression, and other psychologic problems, DOD created the DCoE in 2007. Nine directorates and six centers are under the umbrella of DCoE, encompassing clinical care, education and training, prevention, research, and outreach to military personnel, veterans, and their families and communities (www.dcoe.health.mil). Through the DCoE and other offices, DOD is pursuing several strategies, including integrating mental health services into primary care, embedding mental health professionals in units in theater, raising awareness about mental health disorders in the military community, and running marketing campaigns to promote a healthier, more accepting attitude toward mental health problems and treatment.

Combating Stigma

The Deployment Health Clinical Center in the DCoE oversees the RESPECT-Mil program—Re-Engineering Systems of Primary Care Treatment in the Military. The program targets the primary-care setting as an opportunity to bring access to mental health care to a larger proportion of service members (Engel et al., 2008). For example, Army soldiers visit their primary-care provider an average of 3.4 times per year, and about 90% have at least one visit per year (Engel, 2009).

RESPECT-Mil uses the Three Component Model of care (Engel, 2009; Engel et al., 2008; Oxman et al., 2002), which provides the infrastructure for coordination among each service member's primary-care provider and mental health specialist through a facilitating care manager. The care managers are responsible for facilitating communication between the service member and all care providers, problem-solving barriers to care, encouraging adherence to treatment guidelines, measuring treatment response, and monitoring the service member for remission. In addition, primary-care providers undergo a 2-hour Web-based training session in which they learn brief screening techniques for PTSD and depression and how to use tools provided by RESPECT-Mil to facilitate communication with care managers and mental health specialists and ensure a higher rate of followup.

The Army has implemented RESPECT-Mil in over 30 Army clinics and has plans to staff a total of 43 (provided by the Department of the Army in response to committee request, August 31, 2009). From the start of the program in February 2007 to May 2009, primary-care providers in participating Army clinics screened 62% of over 400,000 total visits compared with 5% or less in nonparticipating teaching clinics. About 14% of patients screened positive, and 60% of the positively screened received a diagnosis of depression or possible PTSD. In total, the Army Medical Command estimates that nearly 3% of all visits resulted in recognition of and assistance for previously unrecognized behavioral health needs (Department of the Army, 2007). The program is limited to Army facilities, but expansion to the other services is in the planning stages (RESPECT-Mil, 2010). The program operates on the premise that merging mental health care

with primary care will increase the use of mental health services and help to reduce stigma (Department of the Army, 2007).

Parallel to the Army's efforts to integrate mental health into primary care, the Air Force's Behavioral Health Optimization Project (BHOP), which began in 1999 and expanded substantially over the last 2 years, integrates behavioral health providers into primary-care clinics in 53 MTFs. Primary behavioral health care relies on brief appointments that are focused on functional assessments and level-of-care determinations. Through BHOP, behavioral health consultation services are provided to active-duty and retired military personnel and their family members in primary-care clinics, where mental health providers deliver both curbside consultation and direct patient care when indicated. This care typically entails brief, empirically supported interventions, primarily targeting self-management and behavioral prescriptions. Twenty contract BHOP positions were authorized in 2008 to expand the program. Thirty-two providers received BHOP training during 11 site visits in 2009; another nine site visits were scheduled to take place by the end of FY 2009 (provided by the Department of the Air Force in response to committee request, June 10, 2009).

The Marine Corps and Army have also begun to integrate mental health professionals into individual units in theater, with the goal of providing more immediate mental health care and identifying potential mental health issues as early as possible. The goals are to help commanders to build unit strength, resilience, and readiness and to provide prevention, early identification, and intervention services to soldiers, marines, and sailors for stress-related problems. The general assumptions seem to be that troops in the field will be more comfortable in talking with members of their own unit and that this might help to avoid the stigma that deters many service members from seeking help for mental health problems (provided by the Department of the Army in response to committee request, August 31, 2009, and the Department of the Navy, September 10, 2009).

The Operational Stress Control and Readiness (OSCAR) program augments the Marine Corps Combat and Operational Stress Control program by embedding full-time mental health professionals at the infantry regiment level. They deploy with their units in theater and stay with them when they return to garrison. Full staffing of OSCAR teams is in progress, and completion is projected for FY 2011. Until then, the Navy's Bureau of Medicine and Surgery plans to fill OSCAR teams for deploying units with available mental health personnel on an ad hoc basis. The Marine Corps also uses existing medical, chaplain, and fighting personnel in the battalions and companies to function as peer mentors, effectively extending OSCAR functionality to units smaller than the regiment. They are selected and trained to perform OSCAR duties appropriate to their expertise and experience (provided by the Department of the Navy in response to committee request, September 10, 2009). Similarly, the Army has developed the Combat and Operational Stress Control (COSC) program. The Army believes that it has increased stress control in theater since the beginning of the war with the deployment of behavioral health professionals. An additional field manual published in 2009 (FM 6-22.5) provides leader guidance in executing the COSC program, and a course in COSC is now required of all deploying behavioral health providers (provided by the Department of the Army in response to committee request, August 31, 2009).

The Real Warriors Campaign, launched by the DCoE in May 2009, "combats the stigma associated with seeking psychological health care and treatment and encourages service members to increase their awareness and use of these resources" (Real Warriors Campaign,

2009). The Real Warriors Campaign presents profiles and stories, including video, of service members, veterans, and military families that have been through the experience of seeking treatment for mental health problems, including PTSD and depression. By sharing true experiences of service members who have sought and received mental health services, the DCoE hopes to demonstrate to other service members that seeking mental health treatment and accessing the tools and resources available are acceptable and in some cases vital elements of successful recovery and reintegration.

The campaign is run primarily through the Real Warriors Web site (www.realwarriors.net), which links to information for active-duty personnel, National Guard and reserve members, veterans, family members, and health professionals. Service members can enter a live chat with a health-resource consultant either through the Web site or by calling a toll-free telephone number; a link to the National Suicide Prevention Lifeline, with a telephone number, is also prominently displayed on the site's home page.

Even with such programs as RESPECT-Mil and OSCAR and campaigns promoting the benefits of mental health care in place to provide some safeguards to service members seeking it, stigma among military personnel remains. The Navy and Marine Corps state that "stigma over seeking help for stress problems is also a significant issue" (provided by the Department of the Navy in response to committee request, September 10, 2009). The committee heard from active-duty military personnel and from OEF and OIF veterans that they are not willing to seek professional help for problems related to mental health. One major reason that has been stated is that it would be a "stripe killer" (see Appendix B). That fear is not limited to enlisted personnel: the committee heard during site visits that officers may be even more reluctant to obtain mental health care because of their concern about obtaining a security clearance if they disclose having ever received such care. However, in May 2008, Secretary of Defense Robert M. Gates announced a change in question 21 on the national security clearance questionnaire (SF-86); the question now excludes counseling related to service in combat.

In addition to the programs described above, military chaplains are available to every military unit for nonclinical counseling and serve as the first point of access for many individuals (DOD Task Force on Mental Health, 2007; Tanielian and Jaycox, 2008). Military chaplains serving as noncombatant officers provide spiritual and moral support to service members and their families. Chaplains refer service members to other sources of care and often assist with military health programs, such as those for suicide prevention. Consultation with a chaplain is confidential, and it has been suggested that this type of informal, nonclinical counseling can be viewed as a safe first source of care for service members in distress, especially those who might have mental health issues and are concerned about stigma (DOD Task Force on Mental Health, 2007; Tanielian and Jaycox, 2008).

Mental Health–Disorder Prevention

The Army developed the Battlemind Training System to teach soldiers better mental health skills and to improve their resilience in the presence of combat stress and reduce their vulnerability to PTSD, depression, and other deployment-related mental health problems. The training builds mental health skills through a series of integrated modules timed to the specific phases of the soldiers' career and deployment cycle. For example, the Battlemind deployment-cycle training consists of predeployment modules to improve health readiness, in-theater Battlemind psychologic debriefings to maintain mental health and identify possible problems

during deployment, and additional modules at reintegration and 3–6 months after deployment. The Army reports that the efficacy of Battlemind training has been validated in large-scale randomized trials (Office of the Surgeon Multinational Force–Iraq and Office of the Surgeon General United States Army Medical Command, 2008).

Because of the perceived success of Battlemind deployment-cycle training, the Army has introduced a version in basic training with the goal of instilling proven stress-management skills in soldiers at the beginning of their careers. Optional Battlemind modules for spouses and couples are also provided before and after deployment with the aim of increasing marital satisfaction and decreasing deployment stress. Additional modules, such as interactive content for military children, are available on the Battlemind Web site (www.battlemind.army.mil) (information provided by the Department of the Army in response to committee request, August 31, 2009).

Substance-Abuse Prevention and Treatment Programs

As described in Chapter 4, although data suggest that alcohol and drug abuse or dependence is probably prevalent in OEF and OIF service members and veterans, it is underreported. Active-duty service members who abuse alcohol or drugs are at risk for dishonorable discharge, so there may be under-reporting of abuse of such substances and minimal treatment-seeking. On the basis of DOD policy, the services can periodically assess the extent of alcohol and drug abuse in active-duty military personnel through their drug-testing programs (DOD Directive 1010.4, September 3, 1997, with Change 1, January 11, 2009); however, it is not clear whether the services monitor the numbers of members who have substance-abuse problems or whether they are referred to treatment programs. According to information available in government documents, each service in DOD manages its own substance-abuse prevention and treatment programs (DOD Task Force on Mental Health, 2007). The Army and Air Force run programs that provide both substance-abuse prevention and treatment services, whereas the Navy and Marine Corps split their substance-abuse services into separate programs for prevention and treatment.

VA provides substance-abuse screening and treatment programs for veterans who are dealing with addiction to or misuse of alcohol, drugs, or tobacco (http://www.mentalhealth.va.gov/substanceabuse.asp). Program options on the state and community levels vary and include inpatient and outpatient services and individual or group therapy and counseling; distribution of such medications as nicotine-replacement therapy, varenicline for nicotine addiction, and methadone for chronic opiate addiction. The focus may be on treatment for comorbid conditions, such as depression and PTSD (VA, 2009e).

Suicide Prevention

Each military service manages its own suicide-awareness and suicide-prevention program. Generally, the programs focus on education and on identifying people who are at high risk. For example, the Air Force Suicide Prevention Program seeks to use policy, programs, and education initiatives to reduce suicide in airmen. The Air Force program uses an integrated system of 11 initiatives that target key policies, programs, and populations considered essential for suicide prevention (Air Force Pamphlet [AFPAM] 44-160, April 2001). It focuses on identifying and intervening with airmen who are at risk for suicide, and all airmen (military and civilian) are trained in risk recognition and intervention techniques.

The Army has also made a concerted effort to improve suicide prevention. The Army Suicide Event Report system continues to offer surveillance and analysis, and the Army Medical Department has created a new Suicide Prevention Office to translate the results into further education and training for mental health practitioners, leaders, soldiers, and their families. One result has been the publication of the Army Campaign Plan for Health Promotion, Risk Reduction and Suicide Prevention (provided by the Department of the Army on request by the committee, August 31, 2009).

Like DOD, VA has established suicide-prevention programs. In November 2004, the Mental Health Strategic Plan called for numerous initiatives to prevent suicide in veterans. As a consequence, VA implemented such prevention programs as the National Suicide Prevention Center of Excellence, appointed a national suicide prevention coordinator, and began flagging patient medical records and establishing suicide-prevention programs in each facility and large community-based outpatient clinics, which have appointed full-time suicide-prevention coordinators. Evaluation of those initiatives in 2009 showed that overall compliance goals were met and program implementation was satisfactory (VA Office of the Inspector General, 2009).

The Joshua Omvig Veterans Suicide Prevention Act (PL 110-110), signed into law in November 2007, called for VA to establish a comprehensive suicide-prevention program with emphasis on decreasing the incidence of suicide in veterans at high risk, such as those who have PTSD or depression. The act requires VA to have 24-hour mental health care available, to establish a 24-hour suicide-prevention hotline, and to place a suicide-prevention coordinator in each VACM; by September 2008, there were 148 suicide-prevention coordinators—at least one in each VAMC (Cross, 2009; Panangala, 2007).

Veteran Chat, launched as a pilot trial in July 2009, is an anonymous on-line suicide-prevention hotline available for veterans, families, and friends; one does not need eligibility or enrollment in VA health care to use this program. If a call is deemed to indicate a crisis, the caller is transferred to the hotline where suicide prevention counselors provide further intervention (VA, 2009q).

Treatment for Posttraumatic Stress Disorder

In light of the increasing mental health–care needs of OEF and OIF veterans, VA has expanded on and developed numerous screening and treatment programs for PTSD. For example, it has implemented mandatory screening of all veterans for PTSD and TBI on their first visit to any VA facility. In addition, vet centers, which have historically provided counseling for Vietnam veterans, are taking measures to attract the current generation of veterans and their families. In general, the mental health–care and social programs provided vary widely, and the array of services depends on location and facility type.

VA sponsors over 200 outpatient and inpatient PTSD-treatment programs and trauma centers in VAMCs, community-based outpatient clinics, and vet centers that provide a variety of treatment, counseling, and support; below are examples of implemented programs at VAMCs (Box 5.2) (VA, 2009r).

BOX 5.2

VA PTSD Programs

1. Specialized Outpatient PTSD Programs

- PTSD clinical teams: offer group and one-to-one evaluation, education, counseling, and psychotherapy
- Substance-use PTSD teams: addresses the combined problems of PTSD and substance abuse
- Women's stress-disorder treatment teams: addresses the specific needs of female veterans who have PTSD

2. Specialized Intensive PTSD Programs

- Evaluation and brief treatment of PTSD: evaluation, education, and psychotherapy for 14–28 days
- PTSD residential rehabilitation programs: focus on assisting service members in reintegrating into daily community life; 28–90 days long
- PTSD day hospitals: outpatient programs provide individual treatment and counseling in a less restrictive environment than in inpatient units; visits 4–8 hours per day (or several times per week)
- PTSD domiciliary units: time-limited residential treatment with a focus on rehabilitation and a goal of transition to outpatient mental health care
- Specialized inpatient PTSD units: trauma-focused evaluation and treatment; 28–90 days of hospital admission
- Women's trauma-recovery program: in Palo Alto; an intensive 60-day residential program with emphasis on war-zone stress and military sexual trauma

SOURCE: Adapted from VA (2009r).

VA also sponsors the National Center for Posttraumatic Stress Disorder; its Web site (www.ncptsd.gov) educates veterans and their family members on PTSD-related issues and offers guidance on how to find local therapists and support groups. Although not particular to OEF and OIF veterans, this additional source provides information on the illness and access points for treatment.

Programs to Meet the Social Needs of Service Members, Veterans, and Their Families

As discussed in Chapter 4, service members returning from Iraq and Afghanistan also face non-health-related challenges and need assistance in readjusting to life outside the war zone, which can include educational, financial, legal, and employment-related support. Although the VBA is designed to meet much of the need for assistance with social readjustment for veterans and to include some benefits for their survivors (such as funeral costs), the individual services also offer support networks that include peer counseling, advising, employment programs, and family-support programs. It is worth noting that numerous states and nongovernment organizations also provide assistance to service members, veterans, and military family

members, but it is beyond the scope of this report to discuss all these efforts; some programs provided by federal agencies are described below.

Family Programs

Military families receive counseling, information, and other support from a broad array of sources. The Deputy Under Secretary of Defense for Military Community and Family Policy issues centralized policies that establish broad baselines for how the military should support its families, and further policies are issued at the service level. Implementation occurs largely at the discretion of individual installation commanders. Furthermore, many bases establish close relationships with local communities to augment family support; for example, bases collaborate with local "military-impacted" school systems through liaison officers to arrange education for dependents or to provide additional employment assistance for spouses and separating service members. The effects of commander discretion and the unique collaborations that develop between an installation and its community mean that the systems of support to which military families can turn to for help vary widely, depending on their service branch and geographic location.

Each branch offers programs that provide support to service members and their families, addressing needs that include deployment readiness and reintegration, financial management, new-parent support, employment, education, relocation assistance, counseling, and support in moving back to civilian life. Programs offered through the Air Force family-services office are briefly highlighted below (provided to the committee by the Department of the Air Force, June 10, 2009); it should be noted that these programs are comparable with those offered by the Navy, Marine Corps, and Army. The Air Force program, called the Airman and Family Readiness Flight, is available at each Air Force installation and manages airman and family readiness centers, youth programs, child development centers, and family child-care programs on bases. The services are available to active-duty, Air National Guard, Air Force reserve, and geographically dispersed service members and their families. Final implementation of the programs falls at the discretion of base commanders, but military family-support programs generally include

- Deployment readiness and sustainment—includes mandatory predeployment briefings and sustainment services for waiting families.
- Reintegration support—as airmen return from deployment, reintegration briefings are provided to inform them of support services; preparation for families is provided at home station and at followup throughout the reintegration process.
- Transition-assistance program—preseparation counseling is mandated by law for all separating and retiring military; the Air Force supplements this counseling with a variety of workshops that focus on job-search skills and assistance to families during transition.
- Military child education—support is provided by senior wing leaders who attend school-board meetings and advocate for the interests of military families; Airman and Family Readiness Flight staff supplement the support with information, referral, and resources for parents.
- Personal financial-management program—financial-readiness services are delivered through one-on-one counseling, classes, and media; the current focus includes assisting with bankruptcy and foreclosure.

- Emergency family-assistance control centers and crisis response—at the request of the commander, Airman and Family Readiness Flight centers set up and serve as a staging area where families can obtain disaster-relief and contingency information and services.
- Personal-life and work-life education services—include prevention/enrichment education and consultation for individuals, couples, and families.
- The Air Force Aid Society Partnership—assists airmen and families as financial emergencies occur; in addition, community-enhancement programs supplement child care, educational needs, and deployment support of family members.
- Relocation-assistance program—includes relocation information and education, including predeparture and postarrival services.
- Employment-assistance services—help to meet the challenges that spouses face in training for and finding suitable positions; the focus is on assisting in training for and continuing in portable careers that can move with the spouse as the family relocates.
- Volunteer resources—Airman and Family Readiness Flight centers collaborate with other base agencies to recruit, train, place, and recognize volunteers across the installation.
- Key spouse program—a family-readiness network that recruits family-member volunteers, usually spouses, to serve as peer-to-peer advisers and liaisons with base leadership; first introduced in a test phase in 1996 and standardized across the Air Force in March 2009.

The Military and Family Life Consultant (MFLC) program delivers short-term, situational, problem-solving nonmedical counseling services to active-duty service members, including those in the National Guard and reserves, and their families who are experiencing trouble in coping with concerns and issues of daily military life (MHN Government Services, 2009). MFLCs are subcontracted licensed clinical social workers, licensed professional counselors, licensed marriage and family therapists, or psychologists; they provide six free informal and confidential counseling sessions per service member per issue, and no records are kept. The primary role of an MFLC is to provide supplemental support, assessment, and referral service, so the program emphasizes flexible appointment times and locations. Service members can access MFLCs on their installation without a referral, whereas service members and families not on an installation can contact Military OneSource to identify the MFLC that is closest to their location. The program was first piloted in 2004 with a limited population and later extended to all services in the United States, Europe, and the Pacific Rim (provided to the committee by the Department of the Army, August 31, 2009).

In 2008, DOD expanded the MFLC program to include personal financial counseling. Personal financial-counseling services include assistance with money management, credit and debt liquidation, analysis of assets and liabilities, and establishing and building savings plans. Contracted certified personal financial counselors help service members and their families to develop realistic spending plans, reduce debt, and save for their future needs and goals (MHN Government Services, 2009).

DOD oversees 800 child-development centers on military installations worldwide. The centers offer a safe child-care environment for children 6 weeks to 12 years old. The centers are generally open Monday through Friday from 6:00 a.m. to 6:30 p.m., but specific hours are subject to the discretion of the installation commander. DOD also oversees the Family Child Care programs, which offer in-home care by providers that are recruited and certified by the installation. Family Child Care helps to bridge gaps in child care when the child-development centers do not entirely meet the child-care needs of the family. Family-service centers, youth

centers, referral offices, and child-development centers have lists of approved homes and providers (MilitaryHOMEFRONT, 2009).

An additional component of military child care is the School Age Care program. School Age Care meets the needs of children 6–12 years old and provides before and after school care and summer and holiday programs. Additional support for families that have children over 12 years old can be found through the youth and teen programs often sponsored by youth services and community centers (MilitaryHOMEFRONT, 2009).

The services have in many cases set up partnerships with national and local nonprofit organizations, often at the local installation level, to broaden the array of child-care options available to military parents. For example, one Air Force program, Give Parents a Break, was created to provide eligible parents with a break from the stresses of parenting for a few hours each month. Air Force partners with the Air Force Aid Society, a national nonprofit organization, to provide child care at no cost to parents who are subject to unique stresses because of the nature of military life—deployments, remote tours of duty, and extended hours (provided to the committee by the Department of the Air Force, June 10, 2009).

Military parents living off base and in remote locations, especially members of the National Guard and reserves, are often eligible for programs that offer in-home child-care assistance. For example, the Air Force Home Community Care program provides over 57,000 hours of free care to Air National Guard and Air Force reserve families at locations near their duty sites and provides free, in-home child care during drill weekends. Other programs, such as Military Child Care in Your Neighborhood, meets child-care needs for remote active-duty military families by providing a direct subsidy (provided to the committee by the Department of the Air Force, June 10, 2009).

The services also offer a Family Advocacy Program to prevent, identify, report, treat for, and follow up on cases of child and spousal abuse in families of service members (DOD Task Force on Mental Health, 2007). The Family Advocacy Program operates at all stages of the deployment cycle and generally includes early-childhood development education, interactive play groups, parenting education, communication-skills training for couples and families, family-violence prevention training for leaders, consultation with leaders and service providers, and family advocacy strengths-based therapy, which offers professional intervention to families that are in crisis or at risk. Each service manages its own aspect of the Family Advocacy Program. For example, 79 Family Advocacy Programs are on Air Force bases worldwide, and 7,000–10,000 family maltreatment cases are assessed each year. Outreach and prevention services touch an additional 20,000–50,000 airmen and family members (provided to the committee by the Department of the Air Force, June 10, 2009).

Numerous sources of counseling and advice on a wide array of topics—including stress, substance abuse, employment, financial and legal advice, marriage, and child care—are available to family members of military personnel and veterans. National Web-based programs, such as Military OneSource (see below), provide easily accessible and free assistance to any military family that has an Internet connection. In addition, many alternate services available to service members, such as chaplains, provide counseling and advice to family members. For example, chaplains have taken a leadership role in supporting healthy marriages and family life. Such long-run family-enrichment programs as the Army's Strong Bonds program (www.strongbonds.org)—which has been expanded to include components targeted at couples,

families with children, and even single soldiers—are slowly becoming widespread across the military community; over 160,000 people participated in the Strong Bonds program in 2008.

Education Programs and Benefits[11]

One of the benefits of the Servicemen's Readjustment Act of 1944—commonly known as the GI Bill—is education. Reworked by Congressman Montgomery of Mississippi in 1984, the Montgomery GI Bill Active Duty program provides an education-benefits package that may be used during active duty or after separation. Persons who first entered active duty after June 30, 1985, are generally eligible under the Montgomery GI Bill. Benefits cover 36 months of education and must be used either within 10 years after discharge from active duty or by November 2, 2010 (VA, 2009b). In 2008, Congress passed the Post-9/11 GI Bill (US Code, Title 38, Chapter 33), which provides education benefits for people who served on active duty after September 10, 2001. Beginning August 1, 2009, under that program eligible service members and veterans can receive educational benefits for tuition and fees, a monthly housing allowance, and a yearly stipend for books and supplies. In addition, eligible active-duty members can apply to transfer their education benefits to spouses or dependents through the DOD Transfer of Entitlement option (VA, 2009a). Similarly, the Survivors' and Dependents' Educational Assistance Program offers a maximum of 45 months of education benefits to eligible dependents and spouses of veterans who died while on active duty or who have permanent and total disability (http://www.gibill.va.gov/pamphlets/ch35/ch35_pamphlet_general.htm, accessed on September 30, 2009). Vocational-education counseling is available to inform veterans and their families about education options, specifically regarding the details of the recent GI Bill; the program is available for transitioning service members within 6 months to 1 year after discharge (http://www.vba.va.gov/bln/vre/vec.htm; accessed on September 30, 2009). In general, depending on length of active-duty service from 90 days to 36 months, benefit coverage ranges from 40% to 100%; people who served at least 30 days and were discharged with a service-connected disability are also eligible to receive benefits at the 100% level.

VA also administers a benefits package for reserve and National Guard members who signed 6-year commitments with a reserve unit after June 30, 1985, and remain active and in good standing with their units. The Montgomery GI Bill–Selected Reserve (Chapter 1606) is funded and managed by DOD. The benefit covers 36 months of education to be used within 14 years (VA, 2009a). In addition, the Reservists Education Assistance Program was created as part of the Ronald W. Reagan National Defense Authorization Act for FY 2005. The benefits (Chapter 1607) are available for reserve and National Guard members who were activated under federal authority for a contingency operation and served 90 continuous days or more after September 11, 2001.

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[11]DOD also provides education assistance as an incentive to join the military. For example, the National Call to Service Program (NCSP) presents incentives, including a $5,000 cash bonus or repayment of a qualifying student loan up to $18,000. To fulfill the requirements of the NCSP and receive the incentives, new members incur an 8-year military-service obligation, which typically will consist of entry and basic training, 15 months of active duty, and 24 months of continued active-duty service or service in the Selective Reserve. The remainder of the 8-year obligation can be fulfilled through any combination of continued active-duty service, service in the Selective Reserve or Individual Ready Reserve, or participation in other national service programs (such as AmeriCorps and the Peace Corps) as designated by DOD. The program was mandated under the National Defense Authorization Act to begin in FY 2003, and implementation differs among the individual services (Defense Finance and Accounting Service, 2009).

Employment and Training Services

Funded by the VBA and authorized by Congress (Title 38, Code of Federal Regulations, Chapter 31), the Vocational Rehabilitation and Education Program works to assist in finding veterans who have service-connected disabilities and helping them to retain gainful employment. To achieve the ultimate end point of independent living, educational and vocational counseling is provided under this program to aid veterans and their families in finding suitable training institutions necessary for employment opportunities. Veterans are assigned to vocational rehabilitation counselors who, after determining eligibility (usually based on a disability rating of 20% or greater), will guide the veterans through the rehabilitation, training, and employment process (VA, 2009s). If a disability does not allow a veteran to pursue employment opportunities, he or she may enroll in the Independent Living Program, which provides support in the form of mental and physical rehabilitation, family-support services, independent-living training, and assistance in locating community services (VA, 2009t).

In January 2008, the Veterans Employment Coordination Service (VECS) was created to advance the mission of recruiting veterans, especially severely injured OEF and OIF veterans, to join the VA workforce; currently, veterans make up 30% of VA's workforce, and nearly one-third of them have service-connected disabilities (VA, 2009u). The VECS is simultaneously charged to ensure that enough employment opportunities are available in VA for interested veterans. Representatives of the VECS attend military career fairs and outreach events, maintain a presence at transition-assistance centers, and collaborate with DOD's Transition Assistance Program to inform separating and retiring veterans about VA employment options. By summer 2009, the program had contacted over 2,300 severely injured OEF and OIF veterans (VA, 2009u).

Another program that is available to veterans who have disabilities is the joint Compensated Work Therapy Supported Employment Services Program (CWTSESP) enacted by PL 108-170. It is a vocational-rehabilitation program that aims to provide veterans who have physical disability, mental illness, substance-use disorder, or homelessness with clinical treatment, vocational rehabilitation and support, and the opportunity for obtaining competitive employment in the community through skills training and placement services. The addition of the program to the established Compensated Work Therapy program ensures that veterans acquire full community reintegration. Much of the target population for the CWTSESP, in addition to the homeless, is veterans who have serious mental illness and who without the support of the program's services would not be able to retain employment independently. According to the directive (VHA Directive 2007-005, January 18, 2007), it is expected that the CWTSESP will be available at most VHA facilities in each of the VISNs. The vocational rehabilitation specialist or vocational rehabilitation counselor in each medical facility is to act as the designated employment specialist and help veterans to obtain employment and communicate with the veterans' treatment staff, employers, and family members to facilitate the necessary continuing support.

Veterans who do not qualify for the above mentioned programs or are not disabled can find employment assistance opportunities through the Transition Assistance Program (described in the transition section of this chapter) or through their individual service branch. Other VA programs, in coordination with DOL, are also available; they are described later in this chapter. Finally, former active-duty service members, including some former reservists, who are unable to find employment after separating from the military may qualify for unemployment benefits

through DOL's Unemployment Compensation for Ex-Servicemembers program (US Department of Labor, 2009b). The program is administered by the states as agents of the federal government, so eligibility and the amount and duration of the benefit vary by state. Several states also provide unemployment benefits for military spouses who must quit their jobs to accompany their service-member spouses on a military transfer assignment (Whittaker, 2006).

Online Programs and Services

With the growing importance of the Internet as a means of outreach and a source of information, especially among the relatively young military population, DOD, and to a lesser extent VA, have placed key programs and services online, where they are available to any service member, family member, or other interested party. Those Internet-based services generally cover a variety of issues from mental health problems to employment support but are limited mostly to providing information and education materials. Although they can reach a very broad audience at relatively low cost, it should be noted that accessing the information depends entirely on the initiative of individuals, and it is possible that many will not see the information provided by the sites.

Military OneSource, an official DOD program that began with the Marine Corps in 2002 and was expanded to serve the entire US military in 2004, provides free 24-hour information and referrals to more than 5 million active-duty military personnel, National Guard and reserve members (regardless of activation status), and their immediate families (provided to the committee by the Department of the Army, August 31, 2009). The service is provided through several avenues, including e-mail, a toll-free telephone number, and a Web site. Users can request referral to private and confidential[12] in-person counseling, which is generally available at a nearby location, at no cost to the service members; this counseling is nonmedical and focused on acute issues and their short-term solutions, including family support, emotional support, debt management, legal issues, education, relocation, parenting, and stress (DOD Task Force on Mental Health, 2007). Military OneSource does not release information about users of the service except in cases of child abuse, spousal abuse, elder abuse, or threats of harm to self or others (provided to the committee by the Department of the Army, August 31, 2009).

MilitaryHOMEFRONT (www.militaryhomefront.dod.mil) is the official Military Community and Family Policy Web site for program and policy information. The Web site provides quick access to programs, benefits, and policies for service members and their families, leaders, and service providers. Visitors can search the MilitaryINSTALLATIONS directory to find programs and services offered at individual military installations; access a social-networking feature called HOMEFRONTConnections, which provides a password-protected forum for service members, family members, and others who provide support to the military to share their experiences and ideas; or use the "Plan My Move" application to access tools that allow a military family to get information about the area to which they are relocating and create a personalized relocation plan. The site also gives information about the Casualty Assistance Program, which provides support to severely injured service members and counsels families of deceased, unaccounted-for, or missing service members. Each service branch oversees its own casualty-assistance operations, but generally each branch assigns a casualty-assistance officer to the family of every deceased service member. That officer works closely with the family to help

[12]Counselors must report family maltreatment, threats of harm to self or others, substance abuse, and illegal activities. These reports are made to the appropriate military and civilian authorities.

to make necessary arrangements, navigate the administrative paperwork, and identify and process all entitlements and benefits for which the family is eligible.

The DCoE's Deployment Health Clinical Center launched its Web site, www.PDHealth.mil, on January 31, 2001, to assist busy clinicians in the delivery of postdeployment health care. It is a source of deployment-related health information for health-care providers, service members, veterans, and family members. It is also the primary source of communication and support for the implementation of the DOD–VA Post-Deployment Health Clinical Practice Guideline. The Web site introduced the guideline to all MTFs.

The Web site contains information on all deployments and deployment support; specific diseases and emerging health concerns; provider-education and patient-education materials; news and information, and a Web-navigable version of the guideline, including online measures and clinical tools to assist in implementing it. The Clinicians Page contains information on updates to the guideline and on supporting guidelines. PDHealth also has an online newsletter, *Deployment Health News*, which is published each business day and draws from publicly available sources to provide articles on health issues related to military service, deployments, and homeland security.

Run by the DCoE's National Center for Telehealth and Technology, the AfterDeployment.org Web site provides online self-assessment and self-help tools and information on where to find care and support for such issues as combat stress and triggers, conflict at work, reconnecting with family and friends, depression, anger, sleep problems, substance abuse, stress management, children and deployment, spiritual guidance, living with physical injuries, and health and wellness.

To help veterans to access their health-care information, obtain a better understanding of their health issues, and explore opportunities to improve their health by working with providers in achieving this goal, VA has a Web-based system, MyHealtheVet. This service is available to all veterans, regardless of whether they are enrolled in the VA system; a veteran simply needs to visit a VAMC to verify identity and set up an account with a login and password (VA, 2008c). Participating veterans are given access to key portions of their electronic medical records in a Web site area called "eVAault," a secure and private location where they are able to view their medical history, add information in a "self-entered" section, and share records with providers in and outside VA with the goal of promoting continuity of care. The Web site also has a mechanism for ordering prescription refills, setting up clinic appointments, and viewing reminders.

Service members returning from deployment in OEF and OIF, their families, and any other interested parties are able to access oefoif.va.gov, which provides a wide array of information on readjustment to civilian life. Sponsored by VA, the site familiarizes the user with VA resources and benefits; social networking sites, such as blogs, Facebook, Twitter, YouTube, and Second Life; and telephone numbers for accessing detailed information on such topics as benefits, education and training, life insurance, and health care.

Programs to Assist in the Transition Out of the Military

In addition to the stresses related to deployment, the transition out of the military is a critical time for veterans, especially those experiencing health issues related to deployment to OEF or OIF. On returning to civilian life, veterans no longer have the direct access to health care

and other support services that they had while on active duty. Parallel services can be accessed through VA, although veterans must enroll to receive those benefits. Such programs as the Transition Assistance Program (TAP) and the Transition Assistance Advisors have been created to bridge the gap from active duty to civilian life.

The TAP is a cooperative effort of DOD, DOL, and VA designed to assist military personnel and their family members as they transition out of active-duty service. Transition assistance offices administer TAP services and are on major military installations, generally at the family support service center for Air Force, Navy, and Marine Corps installations and at career and alumni program centers for Army installations. The TAP supplements on-site locations through its Web site, www.TurboTAP.org, which offers information and select services on line.

For active-duty service members, the TAP provides a four-step program that consists of preseparation counseling, a 2½-day employment workshop run by DOL, a 4-hour VA benefits briefing, and an optional 2-hour briefing on special benefits for veterans who have service-connected disabilities. After completion of those activities, service members can ask for one-on-one counseling sessions and employment assistance through their branch of service.

The TAP also offers a series of briefings for demobilizing National Guard and reserve members, including a 2-hour preseparation counseling session for service members returning from OEF and OIF, a DOL briefing on the Uniformed Services Employment and Reemployment Rights Act, and a VA benefits briefing that also discusses benefits for veterans who have service-connected disabilities. Members of the reserve component are invited to participate in events sponsored by the Yellow Ribbon Reintegration Program (discussed below), where they will receive additional information on VA and other available services.

For severely wounded service members, a social worker at an MTF is assigned to each veteran in the Polytrauma System of Care. The social worker makes contact with the case manager at the PRC facility to transfer medical records and information. Communication is maintained with the case manager to track the service member's status.

Programs for National Guard and Reserve Members, Women, Minority-Group Members, and the Homeless

National Guard and Reserves

Members of the National Guard and reserve components face unique challenges on their return from deployment to OEF and OIF. Unlike active-duty service members who return to their assigned bases, where they have access to the full support structure available on military installations, National Guard and reserve members face what appears to be a more complex transition back to their civilian lives, in which they must deal with the stresses of reconnecting with their families and returning to their civilian employment. In addition, the communities to which reservists return are unevenly prepared to provide care for service-related conditions. A number of programs and measures are in place to assist members of the reserve component, as described below.

There are services specifically for assisting families of the National Guard and reserves to navigate their unique challenges. For example, the Joint Family Support Assistance Program, which was authorized by the National Defense Authorization Act of 2007, is designed to deliver

mobile family-support services to geographically dispersed military families, especially to the National Guard and reserve components (DOD Office of Military Community and Family Policy, 2009). The program is operated through Military OneSource and coordinates with the services and federal, state, and local entities. Program staff offer nonmedical counseling and education to individuals, families, and groups; assistance in locating child care; financial education and counseling; on-demand support for deployment-related events, such as reunion ceremonies and predeployment meetings; and community capacity-building to enhance local resources and support.

DOD chartered the Employer Support of the Guard and Reserve (ESGR) program in 1972 to support members of the National Guard and reserve in employment. The ESGR program works to educate reservists and employers about their rights and responsibilities and to promote a good relationship between employers, reserve-component commanders, and service members. Some 4,500 volunteers organized into 55 ESGR field committees conduct employer-support programs, including informational briefings, mediation, and recognition of employers whose policies support or encourage participation in the National Guard and reserve; in 2009, the ESGR program briefed 162,000 employers. Those volunteers are also tasked with engaging reservists both before and after deployment; in 2009, the program briefed 443,000 service members (Employer Support of the Guard and Reserve, 2009).

Each service runs various programs to assist its reservists in finding employment in the civilian sector. For example, the Army Reserve Employer Partner Initiative is designed to formalize the relationship between the Army reserve and the private sector. The two entities share the goals of strengthening the community and supporting Army reserve soldiers and families. Through the initiative, Army reserve soldiers get two careers—one with the Reserve and the other with an employer partner—and the Army believes that this provides stability to families and gives soldiers additional possibilities for achieving both their civilian and military career goals (provided to the committee by the Department of the Army, August 31, 2009).

The Yellow Ribbon Reintegration Program (DOD Yellow Ribbon Program, 2009) was launched in 2009 to provide support to underserved National Guard and reserve members and their families throughout the deployment process. In the first 9 months, the reserve components hosted more than 1,367 Yellow Ribbon events, which reached an estimated 133,000 reservists and their family members. The program helps reservists to understand their benefits and entitlements as they transition in and out of active-duty status, and it links them to services provided through other sources, including Military OneSource, vet centers, and TRICARE. The Yellow Ribbon Reintegration Program is run through the Office of the Assistant Secretary of Defense for Reserve Affairs.

Women

Attention to the unique needs of female veterans was first formalized in November 1983 with the establishment of the Advisory Committee on Women Veterans (PL 98-160). That committee was tasked to review VA programs, health care, and research projects to ensure that they cater to and meet the needs of the growing female veteran population; as a consequence of the reviews, recommendations were implemented to modify and add programs and services (VA, 2009v).

In 1992, VHA became authorized to provide counseling to female veterans for sexual assault (male veterans were offered counseling services in 1999) (Kimerling et al., 2007); in addition, passage of the Veterans Health Improvement Act in 2004 (PL 108-422) granted VA authority to permanently extend military sexual-trauma counseling and treatment to veterans who experience severe or threatening forms of sexual harassment and sexual assault during military service (VA, 2009v). To screen for military sexual trauma, VHA implemented a universal screening program; if a patient tests positive, medical or psychologic treatment related to military sexual trauma is provided free of charge regardless of VA benefit eligibility. Each VA hospital is required to have a designated coordinator to oversee military sexual-trauma–related issues (Kimerling et al., 2007).

The Center for Women Veterans was created by PL 103-446 in November 2004. Congress established the center to ensure that women have equal access to and awareness of services and benefits without encountering discrimination and to respond to sex-specific needs by creating and implementing programs that cater to the population. Examples of services geared toward women's health promotion and treatment are breast and gynecologic care, hormone-replacement therapy, contraception, fertility counseling, and prenatal and child care. Each VAMC employs a program manager who acts as liaison and information source for service members (VA, 2009v).

Minority Groups

The Center for Minority Veterans was established as a part of the Office of the Secretary in 1994 under PL 103-446. It has been serving as a facilitator to help veterans to be aware of and to access VA benefits and services. A coordinator is available in each state's regional office and health-care facility to provide assistance and information (VA, 2009w).

The Homeless

Starting in 1993 with VA, state, and community collaboration, the Community Homelessness Assessment, Local Education and Networking Groups program (mandated by PL 102-405, 103-446, and 105-114) has worked to identify needs of homeless veterans and ways to bring about change to fill gaps in care (Kuhn and Nakashima, 2009). It was designed to be a periodic and continuing assessment that surveyed VA staff, community providers, and homeless veterans to learn what needs are being met and what barriers remain in such categories as mental and physical health, long-term housing, job assistance, financial support, and substance abuse (Kuhn and Nakashima, 2009).

Some specific programs that are available to homeless veterans are VA's Homeless Providers Grant and Per Diem Program, the Compensated Work Therapy Transitional Residence program, and the Domiciliary Care for Homeless Veterans Program. The Homeless Providers Grant and Per Diem Program works with community agencies to develop and sustain transitional housing and support services for homeless veterans (VA, 2010). The Compensated Work Therapy Transitional Residence program is a vocational-rehabilitation program that provides supervised transitional housing with joint employment for veterans who are homeless, disabled, or otherwise substantially disadvantaged. Veterans work for pay through Compensated Work Therapy and use some of their earnings to pay for accommodations; the average length of stay is 174 days. Recently, a public law added supported employment to Compensated Work Therapy to assist veterans in obtaining outside employment while maintaining the support structure of

Compensated Work Therapy (VA, 2009x). Domiciliary Care for Homeless Veterans is a residential-treatment program for veterans who have clinical and psychosocial problems. Some 5,000 veterans are treated each year; on the average, veterans remain in a facility for 4 months. Before departing, veterans consult with counselors about social issues and community reintegration.

SUMMARY

This chapter summarizes the array of services and programs that are available to service members, veterans, and family members to help meet readjustment needs. A few themes emerged in the review of these programs, particularly in relation to the identification, accessibility, and coordination of services; difficulties in overcoming practical, cultural, and policy barriers; deficits in the tracking of people; and the evaluation of programs. While the number of programs is impressive, there does not appear to be any evaluation of the effectiveness of communication about the availability of programs, nor any information about whether the redundancy of programs is beneficial in meeting the needs of those individuals and groups they are meant to serve; finally it is unclear whether the programs are evaluated, in general, for their effectiveness in meeting the needs of service members, veterans, or family members.

The committee recommends that the Department of Defense and the Department of Veterans Affairs oversee coordination and communication of the multitude of programs that have been created in response to the needs of Operation Enduring Freedom and Operation Iraqi Freedom service members, veterans, and their family members in an effort to maximize their reach and effectiveness. The committee also recommends that there be independent evaluation of these programs with standardized evaluation designs and assessment of outcomes.

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6

FINDINGS, RECOMMENDATIONS, AND PHASE 2

The legislation for this study directed that it be conducted in two phases (see Appendix A). Specifically, Congress directed the National Academies to conduct a study of the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed to Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and their families as a result of such deployment. This report covers the first phase of the study called for in the legislation.

To inform its work during the initial phase of the study, the committee surveyed the literature and met with active-duty and reserve military personnel, veterans, family members, military and veteran service organizations, and representatives of the Department of Defense (DOD) and the Department of Veterans Affairs (VA). Those data gathering efforts were conducted for the committee to get a broad overview of possible readjustment needs as they relate to the long-lasting impact of deployments to OEF and OIF. This chapter summarizes the committee's findings, offers its recommendations, and suggests a framework for approaching the second phase of its study.

FINDINGS AND RECOMMENDATIONS

The committee is aware that it is addressing a dynamic set of issues in that the conflicts in Iraq and Afghanistan are going on now and issues and needs will continue to change. The committee also recognizes that VA, DOD, and other government agencies are actively responding to changing needs of active-duty service members, veterans, and their family members, and that many of the committee's recommendations consequently might already be in the process of being addressed. Overall, the committee has found

- Relevant data on previous conflicts that are useful in addressing issues in the OEF and OIF populations.
- A relative paucity of data on OEF and OIF populations that are adequate to support evidence-based policy on most issues of concern.
- Information on a multitude of programs that have been developed to address the needs of the OEF and OIF populations.
- A scarcity of systematic or independent evaluation of such programs.

As the committee notes in Chapter 3, every war is unique in important respects. Empirical evidence collected from multiple wars documents that exposure to combat, other war-

zone stressors, or even deployment itself can have immediate and long-term physical, psychologic, and other adverse consequences. Some of the consequences have been generally constant throughout the history of warfare, even though the context and nature of warfare have changed dramatically. However, throughout history, society and culture have played a powerful role in how the effects of war on soldiers have been viewed, in the perceived nature and causes of the effects, and in how soldiers were treated for them.

Although the experiences of those deployed to Iraq or Afghanistan bear similarities to the experiences of those deployed in previous conflicts, there are a number of distinctive and important differences in who is serving, how they are deployed, and how the conflicts are being fought. These differences include dependence on an all-voluntary military; service members who are somewhat older and who are more likely to be married with children; greater representation of women and minorities in the military; and greater reliance on the National Guard and reserves. Finally, there have been more frequent deployments, longer deployments, and shorter dwell time than in previous wars.

The differences have important consequences for the types and severity of challenges and readjustment problems likely to be experienced by the men and women serving in OEF and OIF and for the types of support that they and their families need both in theater and on their return home. Most of the differences are notable in that our armed forces and our country as a whole have not had relevant experience with the key features of organization and warfare that makes these conflicts most distinctive. Furthermore, the research that has been conducted shares a set of limitations with studies of the experiences in prior conflicts. Those limitations include

- Reliance on samples of convenience, which limits their external validity (generalizability).
- Reliance on brief screening instruments to identify key outcomes and to estimate prevalence, which limits internal validity.
- Use of cross-sectional designs, which limits the ability to support causal inference and to elucidate the course of disorders.
- Assessment of narrow sets of risk and protective factors, which results in underspecified models with a high risk of bias.
- Conduct of many studies by VA or DOD, rather than by independent third parties, which raises important questions about the accuracy of respondents' self-reports, particularly with regard to sensitive issues.

All those limitations are understandable given the fiscal and practical challenges involved in conducting long-term outcome studies (for example, longitudinal epidemiologic studies are expensive and difficult to implement). To be useful in the formulation of policy, however, studies need to be both scientifically sound and comprehensive. The committee is aware of the Millennium Cohort Study, several studies being conducted by RAND, and other studies that are in progress. Additional studies that address some of the methodologic challenges identified above—for instance, using probability sampling, diagnostic interviewing, and longitudinal designs—will be needed to move the field forward.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on readjustment needs of returning OEF and OIF veterans, their families, and their communities that explicitly addresses methodologic and substantive gaps in completed and ongoing research. For example, the support of large-scale, independent studies with

longitudinal designs, probability sampling, comprehensive clinical assessment of key outcomes, and more fully specified models that include objective biologic measures should be considered.

In Chapter 4, the committee presents many of its preliminary findings and notes that research and program development are needed to substantiate the potential efficacy and cost effectiveness of developing protocols for the long-term management of TBI and polytrauma. The array of potential health outcomes associated with TBI suggests that injured service members will have long-term psychosocial and medical needs from both persistent deficits and problems that develop in later life. Access to rehabilitation therapies—including psychologic, social, and vocational—is required initially with the onset of deficits and will persist over time as personal and environmental factors change leading to loss of functional abilities. VA has put into place a comprehensive system of rehabilitation services for polytrauma, including TBI (see Chapter 5), that addresses acute and chronic needs that arise in the initial months and years after injury. However, protocols to manage the lifetime effects of TBI are not in place and have not been studied for either military or civilian populations. As in other chronic health conditions, long-term management for TBI may be effective in reducing mortality, morbidity, and associated costs.

The committee recommends that the Department of Veterans Affairs conduct research to determine the potential efficacy and cost effectiveness of developing protocols for the long-term management of service members who have polytrauma and traumatic brain injury. The approaches considered should include

- **Prospective clinical surveillance to allow early detection and intervention for health complications.**
- **Protocols for preventive interventions that target high-incidence or high-risk complications.**
- **Protocols for training in self-management aimed at improving health and well-being.**
- **Access to medical care to treat complications.**
- **Access to rehabilitation services to optimize functional abilities.**

Another issue of concern, discussed in Chapter 4, is the critical shortage of health-care professionals—especially those specializing in mental health—to meet the demands of those returning from theater in Iraq and Afghanistan and their family members. Psychologists, psychiatrists, social workers, and other mental health professionals who do serve the military and veteran communities have large caseloads, especially in some locations that result in underserving of patients, high rates of burnout, and turnover. The committee heard of those problems repeatedly in its town hall meetings both from mental health professionals and from those who were waiting for appointments for treatment. Many of the people who spoke at the committee's meetings, from Fort Hood to Camp Pendleton, emphasized that those who are in need of mental health treatment have to wait too long for initial appointments or between appointments.

The committee recommends that the Department of Defense and the Department of Veterans Affairs quantify the number and distribution of mental health professionals needed to provide treatment to the full population of returning service members, veterans, and their families who suffer from mental health disorders, such as PTSD, major depression, and substance abuse, so that they can readjust to life outside of theater. The committee also recommends that the Department of Defense and the Department of Veterans Affairs continue to implement programs for the recruitment and retention of mental health professionals, particularly to serve those in hard-to-reach areas.

Stigma, real or imagined, is perceived by military personnel who are (or are considering) seeking care for mental health or substance-abuse problems. And active-duty military and veterans fear that visits to a mental health provider will jeopardize their careers because of the military's long-standing and understandable policy of reporting mental health and substance-abuse problems to the chain of command. Such a policy is a disincentive to seeking care, underestimates the extent of the problem or the disease burden, and may ultimately compromise readiness.

The committee recommends that the Department of Defense actively promote an environment to reduce stigma and encourage treatment for mental health and substance-use disorders in an effort to improve military readiness and ability to serve. The committee also recommends that the Department of Defense undertake a systematic review of its policies regarding mental health and substance-abuse treatment with regard to issues of confidentiality and the relation between treatment-seeking and military advancement.

As noted in Chapter 4, the demands of the current conflicts have made compliance with DOD's rotational policies (for example, length of deployments and length of time between deployments) difficult. The implications and potential consequences of shorter dwell time and more frequent deployments are of obvious importance for understanding the readjustment needs of service members and their families; policies that help to ease reintegration are paramount. Little research has been conducted to evaluate whether service members who undergo third-location decompression (that is, for service members to have time with their comrades and peers in a restful situation and prepare themselves for going back to their families and communities) have better outcomes than those who do not, but anecdotal reports from foreign troops have been favorable. For example, Canadian forces have returned home from Afghanistan via Guam or Cyprus by spending 5 days of structured time with their units, which allows some time for decompression; they are also required to work about three half-days at their home base, and this provides additional time to adjust to life back in Canada and to ease the transition back into family life.

The committee recommends that the Department of Defense formally assess whether a "third-location decompression" program would be beneficial for US combat troops. Third-location decompression has the potential to allow troops to have time to begin to readjust before returning home and to family responsibilities.

Primarily on the basis of studies of previous conflicts, Chapter 4 highlights many issues related to families, spouses, children, women, and racial and ethnic minority-group members. It also discusses preliminary findings related to social issues related to deployment, such as employment, education, income, debt, wages, and earnings, also on the basis of data on previous wars. The committee found that active-duty service members, reservists, and veterans face hardships resulting from service in Iraq and Afghanistan that extend beyond physical and mental health problems. They also face numerous readjustment needs that affect their ability to adjust to life outside theater. Those needs, in turn, create hardships for their families.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on the social and economic effects of deployment and multiple deployments on families. For example, research should examine the effects of multiple deployments on domestic violence and maltreatment of children, as well as on financial well-being.

Women now constitute 14% of deployed forces in the US military, and, although technically they are barred from serving in combat, a growing and unprecedented number of female soldiers are deployed to combat areas where their lives are at risk. Although all service members are exposed to high levels of workplace stress, women in the military face some unique stressors, such as sexual harassment and trauma exposure that may affect their mental health and emotional well-being. Female veterans report a higher burden of medical illness, worse quality-of-life outcomes, and earlier psychologic morbidity than do men who are exposed to the same levels of trauma. Both the military and family life require commitment and loyalty, and servicewomen who have families may experience intense conflict between the demands of their military roles and their family roles. Some of the specific issues for women are military-related sexual harassment and assault and the resulting mental health problems, histories of premilitary trauma, specific health-care needs, pregnancy and the postpartum period, and the configuration of family roles (such as mother, spouse, and caregiver of aging parents).

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund studies to evaluate the effectiveness of mental health treatments currently being provided to women and to identify potential new treatments designed specifically to address women's unique circumstances and stressors, such as sexual harassment and assault, PTSD, and premilitary trauma.

Although the military has a tradition of being one of the most desegregated institutions in US society, there is evidence that minority-group members have greater health and mental health needs than their white counterparts. For example, some minority groups may be at greater risk for PTSD and other adverse outcomes than nonminority groups exposed to comparable traumatic events. In addition, minority groups are less likely than nonminority groups to use mental health services and quicker to drop out of treatment. Therefore, health-care needs and other needs of minorities might be different from those of whites and are not yet well addressed. All those issues raise a number of research questions that should be addressed.

The committee recommends that the Department of Defense, the Department of Veterans Affairs, and other federal agencies fund research on culturally sensitive

treatment approaches targeted toward minorities. Research is also needed on utilization patterns of currently available services by minority populations and the efficacy of such services to improve health outcomes.

The burden borne by wounded warriors and their families, and thus the public responsibility to treat or compensate them, will persist for many years. Historically, the peak demand for compensation has lagged behind the end of hostilities by 30 years or more, so the maximum stress on support systems for OEF and OIF veterans and their families might not be felt until 2040 or later. To produce timely, accurate, and transparent forecasts of veterans' needs and demands on the system, it will be important to put into place mechanisms for anticipating the needs of veterans and their families so that the needs can begin to be addressed. Although long-term costs are less predictable and potentially are the subject of much controversy, because the costs are certain to be substantial and will be acutely felt by veterans and their families high-quality cost forecasts are needed so that resources can be allocated better.

The committee recommends that Congress appropriate funds and direct the Department of Veterans Affairs to expand the role of its actuary to produce annual long-term forecasts of costs associated with all health and disability benefits that are consistent with the practices of Social Security and Medicare.

As the committee notes in Chapter 5, numerous programs exist or have been developed to meet the readjustment needs of Operation Enduring Freedom and Operation Iraqi Freedom service members, veterans, and their families. There appears to be little coordination between programs and a lack of communication about the programs to those who need the services, especially those living in remote areas (there are notable exceptions, such as Military OneSource). Furthermore, the efficacy of the programs is unknown inasmuch as most programs have not been evaluated and there is no clear chain of accountability. No specific organization is providing stewardship of the available programs to assist those in need.

The committee recommends that the Department of Defense and the Department of Veterans Affairs oversee coordination and communication of the multitude of programs that have been created in response to the needs of Operation Enduring Freedom and Operation Iraqi Freedom service members, veterans, and their family members in an effort to maximize their reach and effectiveness. The committee also recommends that there be independent evaluation of these programs with standardized evaluation designs and assessment of outcomes.

PHASE 2

As previously noted, the legislation (see Appendix A) that mandated this study directed that it be conducted in two phases. The specific aims of the second phase are to carry out a comprehensive assessment of the physical and mental health and other readjustment needs of members and former members of the armed forces who were deployed to OEF or OIF and their families as a result of such deployment and to assess the psychologic, social, and economic effects of such deployment on members, former members, and their families, including

- Effects of multiple deployments to OEF and OIF on members, former members, and their families.
- The scope of the neurologic, psychiatric, and psychologic effects of TBI on members and former members of the armed forces and their family members, including the efficacy of current approaches to treatment for TBI in the United States and the efficacy of approaches to screening and treatment for TBI in DOD and VA.
- Effects of undiagnosed injuries, such as PTSD and TBI, an estimate of the long-term costs associated with such injuries, and the efficacy of approaches to screening and treatment for PTSD and other mental health conditions in DOD and VA.
- Sex-specific and ethnic-group–specific needs and concerns of members of the armed forces and veterans.
- Particular needs and concerns of children of members of the armed forces, taking into account different age groups, effects on development and education, and the mental and emotional well-being of children.
- An assessment of the particular educational and vocational needs of members and former members and their families and the efficacy of existing educational and vocational programs to address such needs.
- Effects of deployments associated with OEF and OIF on communities that have high populations of military families, including military housing communities and townships that are home to deployed members of the National Guard and reserves, and an assessment of the efficacy of programs that address community outreach and education concerning military deployments of community residents.
- Effects of increases in numbers of older and married members of the armed forces on readjustment requirements.
- The development, based on such assessments, of recommendations for programs, treatments, or policy remedies targeted at preventing, minimizing, or addressing the identified effects, gaps, and needs.
- The development, based on such assessments, of recommendations for additional research on identified needs.

The committee has given considerable thought to a framework to advance its task. The remainder of this chapter will describe the committee's approach to the formidable task given to it by Congress.

Inasmuch as the situations in Afghanistan and Iraq continue to evolve—as do the needs of OEF and OIF active-duty service members, veterans, family members, and communities—the committee suggests a flexible approach that can respond to the dynamic circumstances. The committee will expand its ranks by adding experts to assist in data collection and analysis, and it expects to have the input of its new members in the final approach for phase 2 before making its plan final. Phase 2 will probably involve collecting both qualitative and quantitative data. Possible approaches to address the statement of task that will be considered by the committee are described below.

1. Review of funded research and gap analysis

In phase 2, the committee expects to conduct a comprehensive assessment of newly completed and current research on OEF and OIF populations to determine what additional research is needed to identify and assess the magnitude of readjustment needs. The committee

will perform a gap analysis based on the concerns outlined in the legislation (see Appendix A) and the funded research; the committee members will recommend topics for additional studies and provide the details for the approach to the research. The committee will require the cooperation of DOD and VA to compile a comprehensive list of newly completed and currently funded research.

2. Systematic reviews of interventions

The committee will conduct systematic literature reviews on interventions to address readjustment problems for social services and physical and mental health services and will recommend evidence-based interventions, as well as, potential strategies aimed at reducing readjustment needs. There is a need to define optimal standards of care to restore and maintain health for OEF and OIF active-duty service members and veterans. The committee will review the literature on treatment modalities for TBI and PTSD and make recommendations for the best treatment approaches and for culturally sensitive treatments.

3. Identify access-to-care issues

The committee intends to examine issues related to access to care, specifically the extent to which DOD and VA treatment facilities are in areas where the need is greatest. The committee will gather data on demographics and on the number and types of services and programs that are available on the installations and in the surrounding communities (such as local hospitals, social services, and VA medical centers) to map actual resource allocation. The committee will also gather data on the numbers and types of health and mental health diagnoses being made by DOD and VA and examine the numbers of health and mental health professionals in an effort to determine workforce needs. The committee will need the cooperation of DOD and VA as it attempts to gather information to complete this task. DOD has already been helpful in providing detailed demographic information to the committee.

4. Generate opportunities for research to fill identified knowledge gaps

Informed by knowledge gaps identified in paragraphs 1 and 2 above, the committee plans to develop a request for proposals for a large-scale independent study or a suite of studies that would aim to improve understanding of the scope of the consequences of OEF and OIF and that would offer solutions to remediate those needs. Such a study should not duplicate current efforts but rather should be complementary and reflect the state of the science. In general, we anticipate that the study should have longitudinal designs inasmuch as not all consequences of deployment are immediately obvious (or even immediately measurable). It should use probability sampling so that all who served have a nonzero probability of being in the sample (that is, sampling cannot be complete until the war ends, or the sample would be drawn from all those who had served as of a specified date). That will be critical for external validity (generalizability) and to capture the varying nature of exposure by time and place of service. In addition, incorporation of clinical assessment, moving beyond screening instruments, will be required. We expect that some research started in phase 2 might not be completed by the time phase 2 concludes. However, our intention is that this work will lay a comprehensive base for future implementation science that deals directly with the readjustment needs of OEF and OIF active-duty service members, veterans, their families, and their communities. We also note that the committee will lay the foundation for qualitative research if a need for it becomes apparent in the reviews being discussed in the text above.

5. Identify policy remedies

Implicit in much of what the committee has found and has written is that dealing with the population-level consequences of OEF and OIF will require policy changes. The scope of potential policy remedies will be targeted at preventing, minimizing, or addressing the impacts, gaps, and needs identified during the committee's work. It is anticipated that this work will generate specific recommendations that may require statutory changes to implement.

APPENDIX A

LEGISLATION

National Defense Authorization Act for Fiscal Year 2008,
Public Law 110-181
110th Congress (2nd Session)

SEC. 1661. STUDY ON PHYSICAL AND MENTAL HEALTH AND OTHER READJUSTMENT NEEDS OF MEMBERS AND FORMER MEMBERS OF THE ARMED FORCES WHO DEPLOYED IN OPERATION IRAQI FREEDOM AND OPERATION ENDURING FREEDOM AND THEIR FAMILIES.

(a) STUDY REQUIRED.—The Secretary of Defense shall, in consultation with the Secretary of Veterans Affairs, enter into an agreement with the National Academy of Sciences for a study on the physical and mental health and other readjustment needs of members and former members of the Armed Forces who deployed in Operation Iraqi Freedom or Operation Enduring Freedom and their families as a result of such deployment.
(b) PHASES.—The study required under subsection (a) shall consist of two phases:
(1) A preliminary phase, to be completed not later than one year after the date of the enactment of this Act—
(A) to identify preliminary findings on the physical and mental health and other readjustment needs described in subsection (a) and on gaps in care for the members, former members, and families described in that subsection; and
(B) to determine the parameters of the second phase of the study under paragraph (2).
(2) A second phase, to be completed not later than three years after the date of the enactment of this Act, to carry out a comprehensive assessment, in accordance with the parameters identified under the preliminary report required by paragraph (1), of the physical and mental health and other readjustment needs of members and former members of the Armed Forces who deployed in Operation Iraqi Freedom or Operation Enduring Freedom and their families as a result of such deployment, including, at a minimum—
(A) an assessment of the psychological, social, and economic impacts of such deployment on such members and former members and their families;
(B) an assessment of the particular impacts of multiple deployments in Operation Iraqi Freedom or Operation Enduring Freedom on such members and former members and their families;
(C) an assessment of the full scope of the neurological, psychiatric, and psychological effects of traumatic brain injury on members and former members of the Armed Forces, including the effects of such effects on the family members of such members and former members, and an assessment of the efficacy of current treatment approaches for traumatic brain injury in the United States and the efficacy of screenings and treatment approaches for traumatic brain injury within the Department of Defense and the Department of Veterans Affairs;

(D) an assessment of the effects of undiagnosed injuries such as post-traumatic stress disorder and traumatic brain injury, an estimate of the long-term costs associated with such injuries, and an assessment of the efficacy of screenings and treatment approaches for post-traumatic stress disorder and other mental health conditions within the Department of Defense and Department of Veterans Affairs;
(E) an assessment of the gender- and ethnic group-specific needs and concerns of members of the Armed Forces and veterans;
(F) an assessment of the particular needs and concerns of children of members of the Armed Forces, taking into account differing age groups, impacts on development and education, and the mental and emotional well being of children;
(G) an assessment of the particular educational and vocational needs of such members and former members and their families, and an assessment of the efficacy of existing educational and vocational programs to address such needs;
(H) an assessment of the impacts on communities with high populations of military families, including military housing communities and townships with deployed members of the National Guard and Reserve, of deployments associated with Operation Iraqi Freedom and Operation Enduring Freedom, and an assessment of the efficacy of programs that address community outreach and education concerning military deployments of community residents;
(I) an assessment of the impacts of increasing numbers of older and married members of the Armed Forces on readjustment requirements;
(J) the development, based on such assessments, of recommendations for programs, treatments, or policy remedies targeted at preventing, minimizing, or addressing the impacts, gaps, and needs identified; and
(K) the development, based on such assessments, of recommendations for additional research on such needs.
(c) POPULATIONS TO BE STUDIED.—The study required under subsection (a) shall consider the readjustment needs of each population of individuals as follows:
(1) Members of the regular components of the Armed Forces who are returning, or have returned, to the United States from deployment in Operation Iraqi Freedom or Operation Enduring Freedom.
(2) Members of the National Guard and Reserve who are returning, or have returned, to the United States from deployment in Operation Iraqi Freedom or Operation Enduring Freedom.
(3) Veterans of Operation Iraqi Freedom or Operation Enduring Freedom.
(4) Family members of the members and veterans described in paragraphs (1) through (3).
(d) ACCESS TO INFORMATION.—The National Academy of Sciences shall have access to such personnel, information, records, and systems of the Department of Defense and the Department of Veterans Affairs as the National Academy of Sciences requires in order to carry out the study required under subsection (a).
(e) PRIVACY OF INFORMATION.—The National Academy of Sciences shall maintain any personally identifiable information accessed by the Academy in carrying out the study required under subsection (a) in accordance with all applicable laws, protections, and best practices regarding the privacy of such information, and may not permit access to such information by any persons or entities not engaged in work under the study.
(f) REPORTS BY NATIONAL ACADEMY OF SCIENCES.—Upon the completion of each phase of the study required under subsection (a), the National Academy of Sciences shall submit

to the Secretary of Defense, the Secretary of Veterans Affairs, and the congressional defense committees a report on such phase of the study.

(g) DOD AND VA RESPONSE TO NAS REPORTS.—Not later than 90 days after the receipt of a report under subsection (f) on each phase of the study required under subsection (a), the Secretary of Defense and the Secretary of Veterans Affairs shall develop a final joint Department of Defense-Department of Veterans Affairs response to the findings and recommendations of the National Academy of Sciences contained in such report.

APPENDIX B

TOWN HALL MEETINGS

The committee understood that to carry out its task it would be important to hear from people who had firsthand knowledge of readjustment needs—active-duty personnel, veterans, family members, health-care providers, and community leaders. Thus, in addition to its six meetings and literature reviews, the committee hosted a series of informal meetings in communities near military installations that have deployed large numbers of troops to Iraq and Afghanistan. The committee chose a wide array of communities across the United States and held meetings in Killeen and Austin, Texas (near Fort Hood and Camp Mabry, respectively); Jacksonville and Fayetteville, North Carolina (near Camp Lejeune and Fort Bragg, respectively); and San Diego, California (near Camp Pendleton). Committee members also met with the Marine and Family Services Division at Camp Pendleton to gain a better understanding of the needs of marines and marine family members and to learn of the services offered. In addition, groups of committee members and staff traveled to Ohio, Michigan, Indiana, and Watertown, New York, to meet with National Guard members and community representatives. The committee members thank all those who took time to coordinate the meetings and to meet with them and help them to understand the many unmet needs faced by active-duty service members, veterans, and their families and communities.

The individual anecdotes shared in the open meetings have been invaluable in providing the committee with a qualitative understanding of the challenges faced not only by active-duty military, reservists, and veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) in getting access to services but by their family members and by providers trying to meet the readjustment needs of the military and veteran communities. A summary of each meeting and the major themes that emerged are provided below.

Killeen, Texas (Fort Hood): Army

Fort Hood, near Killeen, Texas, home to over 50,000 active-duty service members, is one of the Army's largest installations. Over 85% of its units have been deployed to Iraq or Afghanistan at least once, and most have served two tours (see http://pao.hood.army.mil/fact.sheets.aspx, accessed on November 18, 2009). The committee held a town hall meeting at the Hilton Garden Inn in Killeen, Texas, on April 27, 2009. Numerous mental health providers attended the meeting and stated that they were overwhelmed by the number of service members and veterans requesting mental health care, citing caseloads of up to 900 patients. Some noted that the system was being "overtaxed to the breaking point"; others noted that the "system was overwhelmed." Several veterans expressed frustration with long

delays (12 months in one case) in scheduling appointments and with long wait times between appointments. The providers who spoke stated that they do not have sufficient time for long-term treatment or to ensure necessary followup visits for their patients. The mental health providers also stated difficulties in recruiting and retaining qualified mental health professionals because of overwhelming caseloads (one speaker referred to a high rate of "burnout") and noncompetitive compensation; those difficulties were exacerbated by the need to attract skilled providers to remote rural locations. One of the nurses who attended the meeting noted that there was only one neuropsychologist for the combined Temple, Austin, and Waco area.

Several attendees expressed frustration with the lack of couples and family counseling services, especially relationship and anger-management counseling. Although both veterans and care providers expressed frustration with barriers to accessing mental health care, they seemed pleased with the quality of the care. For example, one veteran stated that the Department of Veterans Affairs' 7-week posttraumatic stress disorder (PTSD) treatment program was "wonderful" and provided the skills to "to deal with my everyday PTSD."

Other issues centered on the burden of traveling long distances to receive needed care, which was described as a disincentive to many who could not take time from work or be away from children or who found the ride too painful (for those with injuries) to make long trips. For example, one woman veteran of OIF who suffered multiple illnesses and injuries described how for a year she had had to drive 2 hours from Ft. Hood to Brooke Army Medical Center in San Antonio twice a week for treatment that was not available in Killeen. During that time, her children, both young teenagers, had to become caretakers for their mother. Their father, her ex-husband, is serving his third tour of duty in Iraq.

The committee heard from reservists (in Killeen and elsewhere) who had trouble in getting medical care when accidents occurred while they were in transit to or from reporting to duty. In one case, a reservist was caught between the Department of Defense (DOD) TRICARE health-care system and private health insurance, noting that neither would pay for his care and each stated that it was the responsibility of the other because he was injured on his trip home from service. He stated that he was paying for his medical care "out-of-pocket" and had already lost his car because he could not continue to make payments on it. He and other reservists noted that they felt that the reserve and National Guard members were treated like second-class citizens compared with active-duty service members with regard to obtaining care.

Austin, Texas (Camp Mabry): Texas National Guard

On April 28, 2009, the committee met with community leaders and representatives of groups that provided services to the reserve component at Camp Mabry, in Austin, Texas, the headquarters of the Texas National Guard (both Army and Air National Guard). The attendees stated that the community, reservists, and employers face substantial employment-related issues. For example, a representative from the Employer Support of the Guard and Reserve reported that employers are initially supportive of reservists during their first deployment, but their willingness to bear the cost of keeping jobs open for activated reservists declines sharply during subsequent deployments, especially in the current economic recession. He noted that many businesses cannot sustain the rehiring of people over multiple deployments, because their positions have been filled by permanent employees.

A psychologist from the police department expressed concern about hiring or rehiring returning reservists who may suffer from undiagnosed illnesses, such as mild traumatic brain injury (TBI) or PTSD, which could affect their judgment if they were civilian law-enforcement officers. She was concerned about providing certification for weapons possession for many of those who applied to become police officers. Several other issues were raised by community representatives, such as the large number of returning OEF and OIF veterans who had TBI or had screened positive for PTSD returning to the community and the costs associated with those illnesses (both social and economic).

Numerous attendees described the many programs that had been developed at the state and local level to address the needs of the retuning OEF and OIF veterans and their family members. They noted that there are many resources and services but that better coordination is needed to maintain effectiveness and cost effectiveness. Others noted that service members and family members are not aware of all the programs available, that family and peer support is weak, and that the issue of stigma prevents many from seeking mental health counseling and treatment. Finally, the results of a statewide survey regarding unmet needs of OEF and OIF veterans and family members were reported. Several themes emerged: military families need stronger support (such as financial assistance, housing, food, clothing, and child care), health services are insufficient and should be expanded (both mental and general medical), returning veterans need more employment training and education than are available, and many people do not know how to connect with the resources available to them, both government and nongovernment organizations, both local and national.

Toledo, Ohio: Michigan, Indiana, and Ohio National Guard

To gain a better understanding of the unique challenges faced by those serving in the National Guard, a subgroup of the committee met with members of the Michigan, Indiana, and Ohio National Guard and health-care providers for these populations. The meeting was held at the Hampton Inn in Toledo, Ohio, on May 11, 2009. The reserve and National Guard have many of the same readjustment needs as active-duty service members and veterans, but their support systems might be less effective. In Michigan, for example, the National Guard and reserve members are activated from communities across the state rather than from a local unit, so Guard members and reservists are not deploying or returning home with their peers; this results in isolation and limited or remote services. The committee was told that many of the programs and services that are available are poorly advertised and that many people who have readjustment needs may not be aware of the services. In addition, especially in rural areas, the geographic distance between patients and providers creates an additional barrier to access.

Fayetteville, North Carolina (Fort Bragg): Army

With almost 50,000 service members stationed at the base, Fort Bragg, near Fayetteville, North Carolina, is one of the largest Army installations and has the largest airborne facility (see http://www.time.com/time/magazine/article/0,9171,1860898,00.html, accessed on November 18, 2009). Fort Bragg deploys more troops to OEF and OIF than any other post (see http://www.mybaseguide.com/army/fort-bragg/units.aspx, accessed on November 19, 2009).

The meeting was held on June 2, 2009, at American Legion Post 202. The active-duty service members and veterans discussed primarily mental health issues and noted that stigma is

attached to seeking treatment for mental health and that many consider it a "stripe-killer." The committee was told that for veterans who did seek treatment for mental health the wait times were too long for appointments and between appointments (echoing what the committee had heard at Fort Hood). Many of the family members at the meeting (particularly mothers) stated that they were overwhelmed by their responsibilities, and this often led to "taking it out on the kids." The younger mothers also seemed largely unaware of support services available to them. Two veterans discussed the difficulty of obtaining medical care. They cited long wait times for appointments, and several described appointments that were scheduled without their input at unreasonable locations and on unworkable dates.

Jacksonville, North Carolina (Camp Lejeune): Marine Corps

Marine Corps Base Camp Lejeune, near Jacksonville, North Carolina, is the largest Marine Corps amphibious-training facility. Over 47,000 marines and sailors are stationed at the base (see http://www.globalsecurity.org/military/facility/camp-lejeune.htm, accessed on November 18, 2009). The committee attempted to hold a town hall meeting on June 2, 2009, at American Legion Post 265, but even with efforts to advertise the event in the Camp Lejeune Globe, on Facebook, through e-mail listservs maintained by veterans' service organizations, and through the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, no active-duty personnel or veterans attended the meeting.

San Diego, California (Camp Pendleton): Marine Corps

Camp Pendleton is a large Marine Corps base near San Diego, California. It has over 42,000 active-duty personnel, and nearly 23,500 reservists also train there (see http://www.pendleton.usmc.mil/information/basefacts/population.asp, accessed on November 18, 2009).

The meeting was held at the Q Restaurant and Sports Bar in Oceanside, California, on August 10, 2009. Many of the marines who attended brought their wives, and some brought their children. It was a dinner meeting at which the committee members and attendees could talk informally. Many of the marines, who had yet to be deployed, told us that the military is doing a good job of supporting them. Some who had deployed and their wives stated that they needed additional educational opportunities, training, and assistance in finding jobs. Others were having trouble in adjusting to life outside the military and were worried about the adverse career effects of seeking care for mental health issues. Many preferred to seek mental health counseling from the military chaplain, believing that to be a safer alternative.

Earlier on that day, several members of the committee met with staff at the office of Marine and Family Services (MFS) Division at Camp Pendleton to gain a better understanding of the service providers' perspective on readjustment needs at the base. The MFS staff members discussed the changing focus of services and programs offered at Camp Pendleton; in particular, they noted the challenge of keeping up with the growing need to support new parents and to provide counseling to prepare families, especially children, for separation during deployment. They also noted that in recent years the number of domestic-violence cases had increased (an issue that was mentioned by community leaders outside Fort Drum).

A staff member discussed the benefits of having the substance-abuse counseling and mental health services in the same location at Camp Pendleton, which allows providers to treat

substance abuse concurrently with comorbid mental health conditions (30% of Camp Pendleton residents who come in for substance-abuse screening have an existing diagnosis of PTSD, depression, or anxiety). The MFS counselors raised the concern that although counseling records are confidential, any referral for additional mental health care in a military treatment facility must be recorded on the marine's permanent record, and this deters many service members from seeking recommended followup treatments. In addition, attrition rates are high in treatment programs, and many patients drop out before completing the recommended regimen. Furthermore, it was noted that most marines do not seek counseling or treatment for substance-abuse disorders, because that would have to be reported to the chain of command and could result in dishonorable discharge. A staff member told the committee that when a marine finally comes for substance-abuse treatment, it is usually after a career-ending event, such as an arrest for driving under the influence.

The MFS office lacks the resources to assign case managers to everyone in treatment programs, and counselors reported that Military One Source[1] referrals take too long to process for most service members and their families to get timely treatment. The MFS office has proposed bringing in social-work students from the University of Southern California as a possible way to alleviate the staff shortage, but they noted that there is insufficient space to house additional providers.

Watertown, New York (Fort Drum): Army

Fort Drum, which is near Watertown in upstate New York, has about 17,000 active-duty personnel assigned to the base. It is home to the 10th Mountain Division, which has seen more deployments than any other division in the Army. A subgroup of the committee met with community leaders on September 25, 2009, to gain a better perspective on community effects.

In general, the community representatives stated that close coordination with the military leadership at Fort Drum had been useful in meeting the needs of the military community. The civilian health system is fully integrated with the military and the civilian populations (there is no military hospital on the base). They noted that recruitment of health professionals is difficult because of the rural location and the payer mix (civilian and military). In addition, the law requires that financial incentives for health-care providers be available for recruitment but not for retention. Apparently, regional partnerships help to leverage resources and helped the local community college in doubling its nursing program. In discussion with the community leaders, the subjects below were raised as important for the community:

- *An increase in domestic violence.* The people who met with the committee noted that the deployments are having an effect on rates of domestic violence. The police hear that "It's out of character" or that he or she "wasn't like this before" from victims. It was noted that there has been a 25% increase in domestic disputes. It was reported that "we spend 90% of our time on 10% of the population, the 'frequent fliers.'" The need for about 20 more officers was noted, as was a need for more case workers to deal with divorce and custody issues in family court.

[1]Military One Source is a free service provided by the Department of Defense (DOD) for active-duty, Guard, and Reserve service members and their families. One can access Military One Source by phone or online. The service is completely private and confidential, with a few exceptions (http://militaryonesource.com/MOS/About.aspx).

- *Additional mental health–care providers are needed, including child psychiatrists*. There is always a need for mental health services, especially for family members. Caseloads are high, and weekly hours are long for school-based social workers.
- *Jobs and education are needed for veterans*. More job training is needed to break the cycle of reliance on social services. Many veterans and family members are healthy and eager to work but have no skills.
- *Deployments lower the population*. Revenues decline as communities collect smaller amounts in sales taxes. Longer deployments have resulted in "single" mothers' not staying nearby; they leave and go home to their parents. The extensions of deployments are hard on the communities.
- There are unmet needs and services to families and children, especially on return of troops. For example, reimbursement models are not set up to provide family counseling. The family members typically access care in the community and pay out of pocket because of the TRICARE benefit design. In addition, about 25% of the population of schoolchildren turns over every year. That results in confusion for the children in the schools. There is a need for trained counselors and specialists for schoolchildren. When military families are transferred, they have to restart care with a new set of service providers.
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