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Policy matters

Anticipating the Traumatic Brain Injury–Related Health Care Needs of Women Veterans After the Department of Defense Change in Combat Assignment Policy

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A B S T R A C T

Background: Female service members' presence in combat zones during Operation Enduring Freedom and Operation Iraqi Freedom is unprecedented both in terms of the number of women deployed and the nature of their involvement. In light of changing Department of Defense policy governing the deployment of women in combat zones, this article intends to set the groundwork for estimating future combat-related injuries and subsequent Veterans Health Administration (VHA) utilization while focusing on traumatic brain injury (TBI).

Methods: The article summarizes and presents the results of a study that examines veterans who present to VHA for TBI evaluation. For a national sample of veterans, a dataset including information on post-screening utilization, diagnoses, and location of care was constructed. The dataset included self-reported health symptoms and other information obtained from a standardized national VHA post-screening clinical evaluation, the comprehensive TBI evaluation (CTBIE).

Findings: Both women and men utilize high levels of VHA health care after a CTBIE. However, there are gender differences in the volume and types of services used, with women utilizing different services than their male counterparts and incurring higher costs, including higher overall and outpatient costs.

Conclusion: As women veterans seek more of their health care from the VHA, there will be a need for more coordinated care to identify and manage deployment-related TBI and common comorbidities such as posttraumatic stress disorder, depression, and chronic pain. Deployment-connected injuries are likely to rise because of the rescinding of the ban on women in combat. This in turn has critical implications for VHA strategic planning and budgeting.

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Female service members' presence in combat zones during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) is unprecedented both in terms of the number of women deployed and the nature of their involvement during deployment (Street, Vogt, & Dutra, 2009). Currently, women represent a greater proportion of U.S. military forces than ever before, comprising 10% to 20% of forces deployed in support of OEF/OIF, equaling nearly 300,000 deployed female troops from 2003 to 2013 (Burrelli, 2013; National Center for Veterans Analysis and Statistics, 2010). In future U.S. military operations, female

involvement in combat zones is likely to increase after the January 2013 Department of Defense (DOD) decision lifting the official ban on women in combat and combat units (Bumiller & Shanker, 2013). Changes in DOD policy will likely lead to women's increased presence in combat operations on the front lines, and thus increased risk to their safety and health. Therefore, it is critical to consider the effect that the changes in DOD's policy will have for women service members so that agencies responsible for providing health care services to women after they separate from military service can anticipate their needs and provide the highest quality health care to this important population (Burrelli, 2013; Frayne et al., 2010). The purpose of this paper is to summarize data pertaining to current health care needs and utilization practices among women veterans to set the groundwork for estimating future combat related injuries and subsequent Veterans Health Administration (VHA) utilization. Specifically, given the relevance of the current war injuries and follow-up care, we are focusing on a high-priority health care issue for veterans, namely, traumatic brain injury (TBI).

Changes to DOD Policy for Deploying Women

Before 1994, and under the Risk Rule, DOD policy barred women from the battlefield to avoid risk of exposure to direct combat, hostile fire, or capture (Beckett & Chiaying, 2002). In January 1994, the DOD lifted the Risk Rule and replaced it with the direct ground combat exclusion assignment rule, stating that the DOD can assign personnel to all positions for which they are qualified in support units, except that women shall be excluded from assignment to combat units whose primary mission is to engage in direct combat on the ground. This essentially prevented women from positions in infantry, artillery, armor, combat engineering, and special operations units of battalion size or smaller. The DOD drafted this policy at a time when the concept of the battlefield was more clearly delineated, characterized both by a front line, where direct contact with the enemy occurred, and relatively safer areas in the rear. However, as the first major military engagements necessitating a large number of ground troops since the change in policy (Harrell et al., 2007), OEF and OIF were characterized by battlefield lines that were substantially less distinct and increasingly nonlinear and fluid, with poorly defined forward and rear battlefield areas resulting in the exposure of women in support units to direct combat (Burrelli, 2013; Street, Gradus, Giasson, Vogt, & Resick, 2013).

In January 2013, then Secretary of Defense Leon Panetta announced that the DOD would rescind the 1994 Risk Rule policy that had excluded women from serving in direct ground combat positions. As part of the new policy, the military services would review about 53,000 positions in combat units and 184,000 specialty positions that had been closed to women. These positions would be open to women who meet gender-neutral occupational performance standards, where qualifications will be assessed on the basis of performance standards without differential evaluation on the basis of gender (Pellerin, 2013).

Growth in Numbers of Women Veterans

Before 1973, women made up less than 1% of the Active Duty forces, with over one-third serving as nurses or in other health-related jobs. The factors that resulted in the expansion of women's roles in the Armed Forces after 1973 included an attempt to increase recruitment and retention after the drastic drop in military size after the switch from conscription to an

all-volunteer service, and the 1970s movement for women's equal rights that led to demands for equal opportunity in all fields, including defense. Since 2001, women have increasingly engaged in military activities that were previously off limits to them. Over 90% of military occupations are now available to women, an increase from an estimated 50% of Active Duty military positions that were open to women in the late 1980s (Harrell, Beckett, Chien, & Sollinger, 2002).

The percentage of Active Duty women increased from 11% in 1990, to 13.6% by 1997, and to 14.5% by 2011 (Burrelli, 2013). In 2010, 203,695 women were in the Active Duty forces compared with 1,213,675 men (85.6%). During the same year, women were 17.9% of the Reserve Component (153,071), compared with 82.1% (704,186) men. The number of women service members discharged from the military since September 11, 2001, now comprises 21% of all living women veterans, whereas the proportion for men is 9.9% (Congressional Budget Office, 2010).

Growth in Numbers of Women Veterans with Combat-Related Exposure

Since 2001, more than half of women service members reported being deployed, and of these, over half reported multiple deployments (Defense Advisory Committee on Women in the Services, 2011). Of the women deployed, approximately 42% indicated they had also been involved in combat operations, compared with 58% of men (Defense Advisory Committee on Women in the Services, 2011). The nature of women's involvement and duties have changed significantly, compared with prior war eras. For example, in addition to holding positions such as military police, convoy drivers, pilots, intelligence, and mechanics, women also had been serving in support positions that involved leaving military bases, assisting combat soldiers, and coming under direct attack (Street et al., 2009). Such positions and duties are likely related to OEF/OIF women veterans' increased reporting of combat exposure relative to previous cohorts (Vogt et al., 2011). For example, a national survey of OEF/OIF veterans found that nearly three quarters (73%) of women reported at least one combat experience (Street et al., 2013). Assessing combat stress and experiences in the immediate aftermath of battle (i.e., carrying dead bodies) and providing relevant treatment for the health problems associated with such stressors is important for the health of women veterans. In addition, such combat-related experiences are likely to increase for women, given the recent rescinding of the policy that excluded women from serving in direct ground combat positions.

Growth in Number Using VHA Services

The impact of the changes in DOD military policy has implications for VHA planning and implementation strategies. The VHA is the system charged with providing health care for U.S. veterans. Under the Veterans Programs Enhancement Act of 1998, service members who have been on active duty in combat operations since November 1998, including the Reserves, are eligible to access services through the VHA system for a 5-year period after separation from active military service (Congressional Budget Office, 2010). Given the potential impact of multiple deployments and combat exposure (Street et al., 2009), improving access to gender-specific care remains an important goal for VHA (Washington, Bean-Mayberry, Hamilton, Cordasco, & Yano, 2013). An estimated 70.6% of surveyed women veterans received some VHA-connected care in 2010, in contrast with 15.3% who received

non-VHA-connected care and 12.6% who received no medical care (Department of Veterans Affairs, 2010). In addition, 53.1% of surveyed active duty women (versus 47.7% of active duty men) in 2010 indicated that they planned to use the VHA as their primary source of health care upon separation from the military (Department of Veterans Affairs, 2010). Women veterans' utilization of primary care in the VHA increased from 122,903 in fiscal 2000 to 257,705 in fiscal 2009, with the number using Women's Health Clinics increasing from 30% (45,827) of all women veteran outpatient users to 37% (107,196) for the same period (Frayne et al., 2010).

As women have been accessing the VHA in greater numbers since OEF/OIF (Frayne et al., 2012), it has also become apparent that they not only have different health care needs, but they are also utilizing different services than their male counterparts. Specifically, it has been found that women veterans incurred higher outpatient and overall costs, and lower inpatient medical and surgical costs, than men (Amara et al., 2011; Hendricks et al., 2013). The proportion of women veterans using VHA outpatient primary care increased from 79% in fiscal 2000 to 90% in fiscal 2009, and the proportion using outpatient mental health care increased from 28% (43,739) in fiscal 2000 to 37% (105,780) in fiscal 2009 (Frayne et al., 2012). Given increases in women's use of VHA care, it is essential to understand the factors that contribute to their health care utilization patterns.

Diagnoses and Utilization Among Female OEF/OIF Veterans

TBI has been consistently characterized as a signature injury of OEF/OIF, with estimates indicating that approximately 7% to 23% of OEF/OIF service members have experienced at least one TBI during deployment (Hendricks et al., 2013; Iverson, Pogoda, Gradus, & Street, 2013). The VA and DOD define TBI as a structural injury and/or disruption in brain function caused by an external force resulting in the onset or worsening of clinical signs immediately post-event (Department of Veterans Affairs and Department of Defense, 2009). Explosive weaponry used in the conflicts in and around Iraq and Afghanistan, such as improvised explosive devices, are the most prevalent cause of OEF/OIF deployment-related injury followed by vehicular accidents and falls (Gondusky & Reiter, 2005; Owens et al., 2008). Many service members are surviving deployment-related injuries that would have been fatal in previous conflicts, owing to advances in body armor (Okie, 2005) and military medicine (Warden, 2006). As a result, there has been a substantial increase in male and female service members incurring and surviving TBI. Less severe forms of TBI may not always be identified right away, especially if there are other medical issues that require more immediate attention (Bass et al., 2012; Terrio, Brenner, & Ivins, 2009). Recognizing that TBI may be underdetected, in 2007 the VHA mandated that all OEF/OIF veterans seeking VHA services be screened for TBI using a four-item screener that identifies deployment events and current screener that may be indicative of TBI (Department of Veterans Affairs, 2007). Those who screen positive are to be offered a referral to a VHA comprehensive TBI evaluation (CTBIE) performed by a specialist who conducts a medical examination and takes a detailed history of deployment-related events to inform their diagnostic decision regarding TBI history and current TBI-related symptoms (Department of Veterans Affairs, 2009).

One way of tracking the health care needs and VHA utilization of female OEF/OIF veterans who may have experienced a TBI is to study retrospectively those who presented for a CTBIE. Hendricks and colleagues (2013) used an observational cohort that included

all VHA patients with a TBI screening captured in VHA National Patient Care Database patient treatment files from October fiscal 2007 through July of fiscal 2009. Patients with a CTBIE during this timeframe were flagged. Data related to gender, service branch (Army, Air Force, Marines Corps, Navy), and component (Reserve/National Guard, Active Duty) were from the DOD Defense Management Data Center database. Patients' gender, VHA inpatient and outpatient services, and estimates of VHA costs for utilization came from VHA National Patient Care Services data files. Descriptive and univariate analysis were conducted to compare the demographics, utilization, and mean costs between the cohort that separated from service between fiscal 2003 and fiscal 2009, and the cohort that accessed VHA health care in fiscal 2008/2009. The dataset also included self-reported health symptoms and other information obtained from the CTBIE. The dataset has been described previously (Amara et al., 2011; Hendricks et al., 2013; Iverson et al., 2011; Pogoda et al., 2012). Analyses comparing men and women on multiple dimensions, including health care utilization, diagnostic accuracy and health symptoms and diagnoses were conducted. A review of key findings from these analyses follows.

Gender Differences in VHA TBI Diagnosis and Evaluation Among OEF/OIF Veterans

Studies examining the extent of diagnoses of TBI on veterans' utilization of VHA care identified numerous gender differences among OEF/OIF veterans (e.g., Hendricks et al., 2013; Iverson et al., 2011). Amara and co-workers (2011) noted that there is a clear indication that there are gender differences in the types and amount of services used, with women having incurred higher costs overall and higher outpatient costs than men. Men have been found to have higher rates of diagnoses of TBI (Hendricks et al., 2013; 23.1% vs. 10.7%, respectively).

Gender Differences in VHA Utilization and Health Symptoms after CTBIE

Although both men and women have utilized high levels of VHA health care after a CTBIE, there are gender differences in the volume and types of services used. Using administrative records of 36,106 OEF/OIF veterans who completed a VHA CTBIE, Krengel and associates (2011) compared inpatient and outpatient VHA utilization between men and women during the year subsequent to their CTBIE. Additional analyses examined gender differences in VHA utilization as a function of CTBIE diagnostic status, mental health diagnoses, and demographic variables. The study concluded that both men and women OEF/OIF veterans had high rates of VHA outpatient visits. However, regardless of TBI diagnosis, women had significantly greater total clinic visit rates and more medical health care visits. Regarding mental health care, women with a positive TBI diagnosis attended fewer mental health care visits in the year after their CTBIE, and all other rates were similar relative to gender. Demographic and service characteristics were also associated with levels of post-CTBIE utilization, and the impacts varied by gender. It was determined that women were more likely to use VHA health care if they were single, in the Reserves or Navy, and had a higher level of education than their male counterparts. These demographic distinctions may be important to consider when providing outreach for those who are less likely to use VHA services post-CTBIE.

Iverson and colleagues (2011) examined VHA administrative records for a national subset of 12,605 veterans from the CTBIE

database who were evaluated as having deployment-related TBI. Women and men were compared on several common mental health diagnoses and severity of neurobehavioral symptoms that were self-reported at the time of the CTBIE. They found that posttraumatic stress disorder (PTSD) was the most common psychiatric condition for both genders, and that women were equally likely as men to have a diagnosis of PTSD, after adjusting for exposure to blast. However, relative to men, women were 2 times more likely to have a diagnosis of depression, 1.3 times more likely to have a non-PTSD anxiety disorder, and 1.5 times more likely to have PTSD with comorbid depression. Additionally, women reported significantly more severe somatosensory, cognitive, and vestibular symptoms, underscoring the importance for providers to identify and treat other conditions among women veterans with deployment-related TBI. Extending this work, a recent examination of self-reported health symptoms among a national sample of OEF/OIF veterans also reported several important gender differences in the associations between probable deployment-related TBI and physical and mental health symptoms (Iverson et al., 2013). For instance, after adjusting for demographic characteristics and other military-related stressors (i.e., combat exposure and sexual trauma during military service), women who reported probable TBI were 2.4 times more likely to report probable depression compared to women without probable TBI, whereas the association between probable TBI and depression was no longer significant among men (Iverson et al., 2013). Taken together, these studies suggest the importance of identifying and addressing women veterans' differential health needs after confirmed TBI or probable TBI.

Implications of DOD Policy on VHA

Over the past two decades the composition of the VHA patient population has shifted. Notably, the number of women OEF/OIF veterans, especially young women, using VHA services has nearly doubled in the past decade (Frayne et al., 2010). This shift in population is likely the result of several factors, including the change in policy on increasing women's military roles, expanded VHA eligibility for OEF/OIF veterans, increased efforts for a seamless transition between DOD and VHA, significant outreach efforts, and other factors such as economic hardships (Burrelli, 2013). As argued, the DOD's change in policy with respect to women serving in combat will likely increase the number of women veterans eligible for VHA services in the near future. If growth in the number of women veterans continues at the current pace, and if VHA successfully increases its outreach and markets its care among the large group of women veterans who do not use its services currently, the VHA can anticipate increasing demands on its care delivery systems for women.

The VHA has adopted a veteran-centric model of care, where interventions are tailored to the individual. It is becoming increasingly clear that women veterans have different treatment needs than their male counterparts (Frayne et al., 2010). For example, one study found that the most important factor contributing to the level of comfort for women undergoing treatment for military-related stress disorders is the availability of specialized clinics for women (Fontana & Rosenheck, 2006). As the number of young women veterans using VHA services grows, the need for clinical services appropriate for women will also increase. The increase in utilization of Women's Health Clinics

may be the result of women veterans' preference for gender-sensitive care with attention to privacy, access to care specific to women's needs such as gynecology, and ability to choose the gender of their health care provider (Mengeling, Sadler, Torner, & Booth, 2011; Washington, Kleimann, Michelini, Kleimann, & Canning, 2007).

Women veterans will require an increasing amount of health care for their deployment-related injuries, particularly in light of the higher percentages of female patients with service-connected status than male VHA patients (Frayne et al., 2012). Such service-connected injuries are now likely to grow because of the rescinding of the ban on women in combat. As more women veterans seek VHA health care for their physical and psychological conditions, there will be a need for more coordinated care (Lew et al., 2007) to identify and manage deployment-related TBI and common comorbidities such as PTSD, depression, and chronic pain (Iverson et al., 2011; Kaur, Stechuchak, Coffman, Allen, & Bastian, 2007; Stein & McAllister, 2009). Moreover, an increasing number of female veterans are seeking disability for PTSD for myriad reasons, including combat exposure, blast exposure, and military sexual trauma—a new challenge from a disability rating standpoint (Kimerling et al., 2011). In addition, female OEF/OIF VHA patients have reported poorer physical and mental health relative to male VHA patients and female civilians (Frayne et al., 2006; Lehavot, Hoerster, Nelson, Jakupcak, & Simpson, 2012). If the VHA is to deliver high-quality care to all of its patients, structural changes are needed to provide the care necessary for female veterans. The VHA needs to anticipate an increasing rate of utilization of outpatient services by women while simultaneously integrating the provision of medical and mental health care.

As a signature injury of OEF/OIF, TBI and its common comorbid health conditions are example areas in which the VHA will need to consider its organizational structures, coordination practices, and resource allocations to accommodate the likely influx of OEF/OIF women veterans who will have a constellation of health care needs. There are many other deployment-related health issues that women veterans face, such as military sexual trauma, pain, musculoskeletal disorders, amputation, burns, spinal cord injury, mental health conditions, and psychosocial functioning, as well as the extent to which multiple deployments, length and location of deployments, combat exposure severity, and occupational roles impact the demand for health services. These are additional important focal areas, but go beyond the scope of the current article to address in detail. Such factors should be considered in future research elucidating the health comorbidities and utilization patterns among women veterans who have experienced TBI.

The changing deployment patterns and demographics of veterans will continue to present clinicians with new challenges associated with caring for women veterans and understanding their differential needs. This in turn has critical implications for strategic planning and budgeting, especially in light of the DOD's recent decision to remove restrictions in assigning women to combat. Such a change will likely accelerate the changes in the gender profile of the veteran population cared for by VHA, making the issues associated with the care of women veterans described here all the more salient.

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