

## Serving the Health Needs of Our Military and Veterans

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*“...to care for him who shall have borne the battle, and for his widow and his orphan.”*

— Abraham Lincoln, Second Inaugural Address

War has a profound adverse affect on public health.<sup>1</sup> In times of war rates of infectious diseases, malnutrition, mental illness, and mortality increase for both combatants and civilian noncombatants. Weapons of war are associated with increased malignancies (eg, Agent Orange, atomic weapons), chronic illnesses such as Diabetes mellitus (eg, Agent Orange), sensory impairment (eg, decreased hearing in artillery gunners), and of course, traumatic injuries. In the past 100 years, the US has been directly involved in 6 major wars (World War I, World War II, Korea, Vietnam, the Persian Gulf, Iraq) and fielded active combatants in other conflicts (Grenada, Panama, Somalia, Bosnia and Herzegovina, Afghanistan). We have been at war in Iraq since March 19, 2003 where over 1 500 000 Americans have been deployed.<sup>2</sup> Thankfully, most of these troops will return home unscathed, but for those who are injured the nature of the injuries are presenting new challenges for the health care system.

North Carolinians play an important role in supporting our military forces, hosting major military bases at Fort Bragg, Pope Air Force Base, Seymour Johnson Air Force Base, and Camp Lejeune. Many of our citizen soldiers from the ranks of the active reserve and the National Guard have been called up. In the health care sector, North Carolina clinicians care for our troops, their families,

and our veterans. Given the major presence of the military in North Carolina, we are devoting this issue of the *North Carolina Medical Journal* to the health and health care of our active duty and retired military forces. We hope that by shining a spotlight on the health effects of war we will help North Carolinians better serve our military personnel and veterans, encourage the private sector and military medicine to share best practices, and stimulate policy makers to proactively plan for the effects of war on our communities and health care system.

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### Who Are Our Military Personnel and Veterans?

America's fighting forces number 1.4 million men and women from all across the nation with the largest proportion, over 40%, coming from the southern United States. Of these,

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106 838 are based in North Carolina, the fourth largest concentration of active duty members in the continental US (Department of Defense Public Affairs Office, oral communication, November 2007). During the Vietnam War, the average soldier in a combat unit was 19 or 20 years old, male, and unmarried. Less than 0.5% of the 2 594 000 who served in Vietnam were women; most of these were nurses.<sup>3</sup> Since the advent of the all-volunteer military in 1973, its composition has changed substantially. Today, our active duty military are older (median age 39.5 years), more educated, more female (14.6%), more likely to be married (50%), and more ethnically diverse (35% minorities). Both the wealthy and the most socioeconomically disadvantaged members of society are underrepresented.<sup>4</sup>

When active duty military exit the service they become veterans. For some, the word veteran evokes unfortunate images of “down and out” individuals, images that are reinforced by movies such as *Born on the Fourth of July*. Data from the US Census Bureau paint a sharply different picture.<sup>5</sup> Just over 10% (23 425 051) of American adults and 11.4% of North Carolina adult civilians are veterans of the armed services. Approximately one-third are Vietnam veterans; the next largest group (18.7%) are veterans of the Gulf War. Veterans are disproportionately male (93%) and younger than the civilian population. Compared to the entire American adult population, veterans are more likely to be White (84.7% vs 75.0%), have some college education (58.3% vs 53.8%), and live above the poverty level (94.1% vs 88.3%) despite having higher rates of disability (26.8% vs 17.3%). Among individuals age 18 to 64 years, employment rates are almost identical to the civilian population. Given the changing demographics of our active duty forces, we can expect the future composition of our veteran population to be more ethnically diverse and more female.

These changing demographics have important implications for our communities. In past wars, we agonized as our sons marched off to war. Now it is increasingly likely that our spouses and daughters will be marching beside them. Consequently, the disruptive effects of war may be magnified for families and communities. From a public health perspective, we need to consider how best to meet the needs of families who keep the home fires burning and be prepared to care for wounded warriors and facilitate reintegration into civilian life. In this issue of the *Journal*, Denisse Ambler describes the effect of war on military families, and Steven Moore describes the Citizen Soldier Project, a federally-funded program to build bridges between community resources and families in North Carolina.

## The Price of War: Effects on Health

As of late 2007, over 28 000 service members had been wounded in Iraq.<sup>6</sup> Most were treated and returned to duty within 72 hours, but over 3000 had serious injuries requiring intensive, long-term care including severe traumatic brain injuries, amputations, burns, blindness, or polytrauma. Traumatic brain injury (TBI), a signature injury because of its higher incidence in this war is estimated to affect about 50% of

soldiers injured in combat; most TBI is classified as mild. Traumatic brain injury may cause headaches, sleep disturbances, and sensitivity to light and noise. Adverse effects on cognition include disturbances in attention, memory, or language as well as delayed reaction time during problem solving. Depressed mood, anxiety, impulsiveness, and emotional outbursts are particularly troubling symptoms and may overlap with the symptoms of posttraumatic stress disorder (PTSD).<sup>7</sup> The long-term consequences of mild to moderate TBI are not fully known but current estimates are that one-third of TBI affected individuals will develop chronic symptoms. Compared to other major medical problems, we know relatively little about effective care for these individuals. George Jackson, Natia Hamilton, and Larry Tupler describe TBI in greater detail in this issue of the *Journal* and give recommendations for a brief screen and regional treatment resources. Kenneth Goldberg describes the epidemiology of health problems in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans seeking care at the Veterans Health Administration (VHA).

Mental illnesses, the so-called “hidden injuries,” are much more prevalent than major physical injuries, but like physical injuries, they are associated with combat exposure.<sup>8,9</sup> In a study of 88 235 Army soldiers and Marines returning from Iraq, clinicians identified 20.3% of active and 42.4% of reserve component soldiers as requiring mental health treatment.<sup>10</sup> Our citizen soldiers are reporting extraordinarily high rates of psychic trauma. Importantly, longitudinal studies are showing high rates of emergent PTSD symptoms that are manifest 3 or more months after return and perhaps after returning to civilian life.<sup>10,11</sup> In addition, the proportion of soldiers reporting interpersonal conflict (14% active and 21% reserve components) increased from time of return to follow-up assessment. Despite the high levels of morbidity, relatively few soldiers seek mental health treatment, and there is a substantial time gap between when a returning soldier perceives the need for mental health services and the time the soldier receives them. In particular, soldiers report an unmet need for greater therapy/counseling, skills training, and information about mental health problems.<sup>8,12</sup> In this issue, Captain Michael Latzka describes an innovative Army program to bolster mental health services at 15 bases for active duty military seen in primary care settings.

The high rates of psychiatric symptoms in active duty military are supported by early data on OEF/OIF veterans who seek care in the VHA health care system. Through September 2005, 25% of the 103 788 OEF/OIF veterans seen at VHA received a mental health diagnosis.<sup>13</sup> Most initial diagnoses (60%) were made in nonmental health settings. Posttraumatic stress disorder was the single most common mental health diagnosis, but over one-half of patients had more than one mental health diagnosis. Neither the military nor VHA were fully prepared to cope with these extraordinary rates of mental illness. In response to the epidemiological data, VHA is attempting to expand its capacity and resources in mental health services. In this issue, Harold Kudler and Kristy Straits-Tröster present a practical clinical summary on the recognition and management of PTSD.

Edward Post and William Van Stone describe a VHA program to expand and better integrate mental health and primary care services. Both VHA and Army efforts to bolster mental health services are based on over a decade of rigorous research showing that care management models improve outcomes for patients with depression, an approach that is also showing promise for other mental health conditions.<sup>14</sup> These data have important implications for the state of North Carolina. Since the minority of veterans access the VHA health system, most veterans will be cared for in the private medical system. Few practices routinely screen for depression, PTSD, or TBI, and current reimbursement policies do not support evidence-based care management programs. Our public mental health services are already stretched thin and are unlikely to readily absorb the influx of new patients. Unmet mental health needs would likely have important negative impacts on our citizen soldiers, their families, and their employers.<sup>15,16</sup> North Carolina needs to carefully plan for increased mental health needs and monitor the accessibility and quality of services delivered.

## **Where Do Active Duty Military, Their Dependents, and Veterans Get Health Care?**

“It is almost cliché now to find examples of a wounded Marine having initially been treated by a Navy Corpsman find himself medevac’ed by an Army helicopter to undergo emergency surgery at an Air Force Theater Hospital.”<sup>2</sup> In the Vietnam era, 5 out of every 8 seriously injured service members survived; today, 7 out of 8 survive, many with injuries that in previous wars would have been fatal. In addition to better protective equipment, important operational and medical advances are saving lives and may have applications to civilian medicine. Past wartime medical advances included the rapid expansion in the use of penicillin in World War II and using emergency evacuation by helicopter in Korea and Vietnam. This latter advance was adopted by civilian trauma care with great success. In the current war, Forward Surgical Teams establish a functional hospital and operating team within 60 minutes of the combat zone.<sup>17</sup> For penetrating injuries, these teams have adopted a new approach of “damage control”—just enough surgery to stabilize the patient and then transfer to a higher level of care. In Vietnam, the average time from battlefield to arrival in the United States was 45 days; it is now less than 4 days. This change in management has improved survival rates, and some of the specific surgical approaches are being adopted in US trauma units. The crucible of war often stimulates medical advances that are applicable to civilian medical care.

As with much US medical care, health services for active duty, retired military, and veterans are provided by a complex web of services. The major health care options for nondeployed military and their dependents are the 68 military treatment facilities, the 154 military outpatient clinics, and TRICARE. TRICARE is the civilian care component of the Military Health System. TRICARE is a regionally managed health care program for active duty, activated Guard and Reserves, and retired members of the uniformed services, families, and survivors. In

North Carolina, Womack Army Medical Center and its affiliated primary care clinics serve the greatest numbers of military service members.

The Veterans Administration (VA) was established in 1930 to consolidate and coordinate government activities affecting war veterans. In 1988 President Reagan signed legislation creating a new federal Cabinet-level Department of Veterans Affairs to replace the Veterans Administration. The Veterans Health Administration (VHA) is the component that implements medical programs and draws its mission from Abraham Lincoln’s eloquent Second Inaugural Address. It is a single-payer, government-run health care system operating 153 medical centers, over 200 Vet Centers, and 875 outpatient clinics.<sup>2</sup> Over 4 million veterans are enrolled in VHA and compared to age-matched Americans, these veterans are more medically complex and poorer. North Carolina has 4 VHA Medical Centers, 2 large outpatient clinics, 6 community-based outpatient clinics, and 5 Vet Centers. Sara Haigh describes the VHA system and resources more fully in her commentary.

For multiple years running, veterans have been more satisfied with their VHA health care than patients in the private sector. Despite caring for medically complex patients, VHA has won accolades for quality of care that meets or exceeds that seen in the private sector.<sup>18</sup> In a Rand Corporation study, VHA matched or exceeded private sector quality scores in virtually every category studied, despite spending substantially less per patient than the national average.<sup>19</sup> For example, the VHA’s prescription accuracy rate is greater than 99.997% compared to 92% to 97% in the private sector. Prescription accuracy has been improved by the intelligent use of technology—barcoding every medication dispensed. Among chronic care patients, VHA patients received about 70% of recommended care compared with about 60% in the private sector. Preventive care is even better with VHA patients receiving about 65% of recommended care compared to 20% in the private sector. The greatest difference between VHA and the national sample were in areas where VHA actively measured performance. While other reasons for the outperformance are not completely known, a sophisticated electronic medical record system, strong leadership with decentralized decision making, and investments in systematic quality improvement and applied research are clearly a large part of the quality gains. As America enters an election year with health care near the top of the voters agenda, VHA successes deserve closer examination for possible applications to the private sector. Eugene Oddone and Seth Eisen describe the national VHA medical research effort and examples of local impact.

## **Conclusion**

The nature of war and the composition of our fighting forces have changed in important ways over the past 100 years. Soldiers are surviving more severe injuries that require longer term rehabilitation. Many of these soldiers will want to complete rehabilitation close to home, and there may be an opportunity for North Carolina treatment facilities to support this need.

Greater capacity for rehabilitation services is consistent with the general need to expand longitudinal care services in the US medical system. The rates of mental illness are higher than reported in previous wars—possibly due to the nature of combat but also likely related to better detection in military and VHA health facilities. Fledgling efforts to improve detection of mental illness and integration of mental health and primary care services in North Carolina need to be supported.<sup>20</sup> This is likely to require changes in reimbursement policies to support care management activities. Finally, it's clear that the military and

VHA investment in applied research is yielding actionable data that allows for improved health services. North Carolina has made large private and public investments in medical research. We should ensure that a significant proportion has a high return on investment through better planning of workforce, services, and quality improvement. Through carefully crafted policies, education of our clinical workforce, and intelligent research investments, North Carolina can excel in meeting its obligation to support the health needs of its citizen soldiers. **NCMJ**

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