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JRRD Guest Editorial

VA paradigm shift in care of veterans with limb loss

Traumatic limb loss results in pain and discomfort in addition to the loss of an important part of the body and its function. The mental health challenges accompanying limb loss include issues of frustration and body image, role in life, and feelings of not being whole. Many servicemembers and veterans with limb loss need to prove to themselves that they can still accomplish physical feats, such as those with lower-limb loss returning to running or those with upper-limb loss working with tools. If our servicemembers and veterans let these activities go, they again feel a loss. Therefore, Department of Veterans Affairs (VA) services are available to help individuals meet their physical and recreational goals, whether they be running, walking, or mastering complex upper-limb activities. Veterans with limb loss need ongoing clinical care, prosthetic devices, and mobility assistance. As their prosthetic devices are repaired, replaced, and updated, they need corresponding education and training. Too often in the past, the VA has taken a narrow view of amputation care, focusing only on managing prosthetic devices. Prosthetic care is one small but important aspect of the complex rehabilitation partnership between the veteran with limb loss and the VA.

To assess the current veterans' perspective in this complex rehabilitation partnership, the VA Health Services Research and Development (HSR&D) Service launched the *Survey for Prosthetic Use* (**Appendix 1**, available online only). This issue of *JRRD* reports the results of this first national survey of Vietnam veterans and servicemembers from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) who sustained major traumatic limb loss while serving their country in war theaters.

Each participant in the *Survey for Prosthetic Use* identified his or her level(s) of limb loss (see **Table**), concurrent injuries and illnesses, health status, quality of life, and physical function. They also documented their use, replacement, rejection, and abandonment of prosthetic devices and their satisfaction with prosthetic and assistive devices. Vietnam veterans are a critical part of this survey because they average 39 years of life experience with limb loss, prostheses, and wheeled mobility and have much to offer their OIF/OEF colleagues adjusting to limb loss.

Our 27-member Expert Panel was composed of professionals from academic and clinical settings, clinicians and researchers from the VA and Department of Defense (DOD), and 3 veterans with limb loss from the Vietnam and OIF/OEF conflicts. All panel members identified issues and unmet needs and provided valuable insight. The Expert Panel communicated by teleconference and met in Seattle in June 2008 to discuss findings and set parameters for analysis where none previously existed. Members of the Expert Panel subsequently worked in teams to write articles for this issue of *JRRD* based on data from the *Survey for Prosthetic Use*. Panel members are

Table.
Number of survey participants by conflict and level of limb loss.

War Theater	Unilateral Upper-Limb Loss	Unilateral Lower-Limb Loss	Multiple Limb Loss	Total
Vietnam	47	178	73	298
OIF/OEF	50	172	61	283
Total	97 (17%)	350 (60%)	134 (23%)	581

OIF/OEF = Operation Iraqi Freedom/Operation Enduring Freedom.

listed in **Appendix 2** (available online only).

The editorial by Paul Pasquina, MD, Chief of Physical Medicine and Rehabilitation Service at Walter Reed Army Medical Center, describes the "DOD paradigm shift in care of servicemembers with major limb loss" [1]. This broad DOD paradigm shift includes advances in battlefield care; rapid medical evacuation; early life-saving techniques; state-of-the-art surgery; and comprehensive, holistic rehabilitation care. DOD's specialized centers were designed to achieve the highest level of physical, psychological, and emotional function in servicemembers with limb loss. This paradigm shift is a major reason many servicemembers with limb loss elect to continue their military career.

The editorial by Barbara Sigford, MD, former Director of the VA National Program for Physical Medicine and Rehabilitation, describes the "Paradigm shift for VA amputation care" [2]. Planning by VA clinicians to improve care for those with limb loss began in 2006 and was the basis for discussion and collaboration between VA and DOD colleagues during the Expert Panel meeting. Dr. Sigford's legacy is a person-centered approach for all veterans with limb loss that recognizes the need to partner with veterans with limb loss for lifelong VA support. Her editorial describes the VA paradigm shift, a new VA Amputation System of Care. Dr. Joseph Czerniecki, Dr. David Cifu, and Cindy Poorman from Physical Medicine and Rehabilitation and Neal Eckrich from Prosthetics and Sensory Aids Services now lead the implementation of the VA paradigm shift for amputation care.

We invited three veterans with major traumatic limb loss to serve on the Expert Panel. They kept the Panel focused on the realities of life following limb loss. The editorial "Wounded warriors' perspectives: Helping others to heal" describes their experience, their transition to the VA, challenges they identified for the VA's rehabilitation programs, and the importance of helping fellow wounded warriors [3].

The Expert Panel discussed survey findings and provided direction throughout the 3-day Seattle meeting and subsequent conference calls. "Expert Panel recommendations—Based on research and deliberations from VA HSR&D project 'Impact of the DOD paradigm shift on VA amputee prosthetic care'" is a synopsis of the Panel's recommendations in three categories: clinical recommendations, research recommendations, and general recommendations [4].

The first article, "Servicemembers and veterans with major traumatic limb loss from Vietnam War and OIF/OEF conflicts: Survey methods, participants, and summary findings," presents detailed methods and major findings [5]. The article presents the first-ever rates for prosthetic acquisition, replacement, rejection, and abandonment for servicemembers and veterans from Vietnam and OIF/OEF.

Limb loss at different anatomic levels requires a uniform approach to analysis. Therefore, our survey respondents are grouped into three analysis groups: unilateral upper-limb loss, unilateral lower-limb loss, and multiple limb loss. There are fewer servicemembers and veterans with upper-limb loss; therefore, the 97 Vietnam and OIF/OEF participants with upper-limb loss represent one of the largest uniform upper-limb-loss data-collection efforts. In the article "Unilateral upper-limb loss: Satisfaction and prosthetic-device use in veterans and servicemembers from Vietnam and OIF/OEF conflicts," we postulate that success with an upper-limb device is measured by successful performance of daily tasks and the restoration of body image rather than by counting the hours prosthetic devices are worn [6].

Vietnam and OIF/OEF survey participants with unilateral lower-limb loss constitute the largest group for analysis. Our article "Unilateral lower-limb loss: Prosthetic device use and functional outcomes in servicemembers from Vietnam war and OIF/OEF conflicts" addresses prosthetic devices used at every level of limb loss by participants [7]. A multivariate model identifies variables associated with higher functional ability in participants from both cohorts.

The inclusion of 134 participants with multiple limb loss allows a comparison of severe war-theater injuries, comorbidities, and self-reported health between the two conflicts. "Multiple traumatic limb loss: A comparison of Vietnam veterans to OIF/OEF servicemembers" explains why self-reported health is higher in participants with multiple limb loss than in other limb-loss groups [8].

In prior years, the rehabilitation approach was to offer a veteran with a lower-limb loss either a prosthetic device or a wheelchair. The current approach recognizes that these servicemembers are not in a position to use one or the other, but may need a combination of multiple prosthetic and assistive devices for mobility, daily activities, and sports activities. The need for wheeled mobility, crutches, walkers, or canes to provide mobility, support, and increased options is addressed by the article "Wheeled mobility: Factors influencing mobility and assistive technology in veterans and servicemembers with major traumatic limb loss from Vietnam war and OIF/OEF conflicts" [9].

Expert Panel members with years of prosthetic experience are the principle authors for the article "Comparison of satisfaction with current prosthetic care in veterans and servicemembers from Vietnam and OIF/OEF conflicts with major traumatic limb loss" [10]. They found that prosthetic devices from private sources under contract with the VA were used by 78 percent of Vietnam study participants compared with 42 percent of OIF/OEF participants. Overall, only 16 percent of Vietnam and 9 percent of OIF/OEF survey participants received their prostheses directly from the VA.

Expert Panel members used multivariate models to identify the issues associated with higher and lower quality of life in participants from both conflicts in the article "Quality of life for veterans and servicemembers with major traumatic limb loss from Vietnam and OIF/OEF conflicts" [11]. The analysis identified specific areas in which overall quality of life in veterans and servicemembers with limb loss could be improved.

Rapid developments in prosthetic devices and increasing costs stimulated our article "Prosthetic cost projections for servicemembers with major limb loss from Vietnam and OIF/OEF" [12]. This article applies findings on participant's limb loss and prostheses to a Medicare cost matrix. Based on the physical function of survey participants, we estimated their costs. Markov models are then used to project 5-, 10-, 20-year, and lifetime prosthetic costs.

Servicemembers and veterans with limb loss are eligible for benefits including medical care and compensation. The final article "Department of Veterans Affairs compensation and medical care benefits accorded to veterans with major limb loss" identifies monthly compensation, pension, and benefits for Vietnam, Desert Shield/Storm, and OIF/OEF veterans with major limb loss [13].

Many Federal, State, private, and volunteer organizations provide resources for wounded warriors and their families. "Resources for wounded warriors with major traumatic limb loss," identifies military, VA, and other sources for assistance and special family support and can be found in its entirety online as **Appendix 3**.

The issue concludes with a glossary defining terms used in the articles based on the Centers for Medicare & Medicaid Services and professional sources [14].

The survey data are rich and summarize the current prosthetic care situation. The paradigm shift for VA limb loss care articulates the lifelong partnership between veterans and the VA. We hope these articles are of interest to VA clinicians, researchers, policy makers, and veterans with limb loss.

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