



Expert Panel recommendations—Based on research and deliberations from VA HSR&D project “Impact of the DOD paradigm shift on VA amputee prosthetic care”

Major limb amputations are part of the sacrifices made by over 2,500 living Vietnam veterans and nearly 1,000 servicemembers to date from the conflicts in Afghanistan and Iraq. The men and women from both conflicts who completed our survey report favorable health and quality of life ratings, tremendous resilience, and hard work to reintegrate into society despite serious injuries and comorbidities.

Our 27-member Expert Panel was composed of professionals from academic and clinical settings, clinicians and researchers from the Department of Veterans Affairs (VA) and the Department of Defense (DOD), and three veterans with limb loss from the Vietnam, Operation Iraqi Freedom (OIF), and Operation Enduring Freedom (OEF) conflicts. They identified issues and unmet needs and provided valuable insight. The Expert Panel communicated by teleconference and met in Seattle in June 2008.

During the Expert Panel meeting, the members collaborated on strategies to extend the principles of the DOD paradigm shift to VA care. Expert Panel members share a common rehabilitation goal for servicemembers with limb loss: to restore and maintain function to the fullest extent possible over their lifetimes. Restoration provided by prosthetic limbs (though important) is but one of the contributions of the interdisciplinary rehabilitation team.

CLINICAL RECOMMENDATIONS

1. We recommend a VA paradigm shift in limb-loss rehabilitation and prosthetic-device care, as described by Dr. Sigford in her editorial in this issue [1] and approved by VA Patient Care Services. This initiative includes creating VA Regional Limb Loss Centers, Polytrauma Amputation Network sites, Amputation Care Teams, and amputation points-of-contact for veterans with limb loss. We also recommend annual clinical and prosthetic-device reviews. We also recommend opportunities for supervised trials of new prostheses and related education, education on realistic expectations, telehealth options for veterans, and a toll free number for troubleshooting veterans' limb-loss-related issues.
2. We recommend a uniform standard of care based on functional ability, operationalized rehabilitation potential, personal preference, and safety considerations for all veterans with limb loss regarding training and provision of prosthetic devices [1–4]. Survey participants identified differences by military conflict in rehabilitation, training, opportunities for sports and physical

- activities, and availability of technologically advanced prosthetic devices for those with limb loss.
3. We recommend prostheses are but one component of the rehabilitation process. Therefore, we recommend continuing to allow servicemembers and veterans to select prosthetic-device providers—either in-house fabrication with direct purchase of components and assembly by board-certified VA providers or contracts with prosthetic device providers outside the VA. Veteran satisfaction, access, and proximity to care are enhanced using this approach [4].
 4. We recommend creation of a VA Limb-Loss Registry using the VA Corporate Data Warehouse. The Corporate Data Warehouse currently maintains information on each veteran. A flag can be added to indicate limb-loss level and traumatic etiology for each veteran. This registry can facilitate care coordination, communication, and research by VA and DOD investigators.
 5. We recommend a clinical template to document limb-loss-related care, services, and visits be added to the VA electronic medical record (Computerized Patient Record System).
 6. We recommend linking to the VA Corporate Data Warehouse a common template for unique servicemembers' detailed prosthetic device data, including dates; number; and type of prostheses provided, repaired, and replaced. This common template would be used by the VA, VA contractors, and the DOD to better understand prosthetic device history and preferences. This will facilitate outcomes research. After validation, data from the National Prosthetic Patient Database could be used to support this initiative.
 7. We recommend early consideration on wheelchair provision and skills training for servicemembers with lower-limb loss to benefit those who may rely on wheelchairs as a primary or intermittent mode of ambulation [5].
 8. We recommend that all veterans with limb loss receive emails and/or mailings with current information on VA limb-loss care and effective new prosthetic devices at least annually. This information should also be posted on the VA

Web site for servicemembers with limb loss (<http://www.prosthetics.va.gov/>). Similarly, we recommend updated information on benefits for servicemembers with limb loss as new information becomes available [2–4].

RESEARCH RECOMMENDATIONS

1. We recommend the DOD and the VA Rehabilitation Research and Development (RR&D) Service support research on rehabilitation of servicemembers with limb loss. Research topics include interactions affecting physical and psychological function (including posttraumatic stress disorder, depression, and traumatic brain injury), social support, quality of life, prosthetic comfort, satisfaction, and the effect of treatment interventions on outcomes after limb loss. We also recommend support for research on the timing and intensity of rehabilitation care, the rehabilitation environment, and outcome prediction for servicemembers with limb loss.
2. We recommend the DOD and the VA RR&D Service support research on neuromusculoskeletal pain and treatment in persons with limb loss [3–4,6–7].
3. We recommend practice-based evidence be available to guide clinical approaches to servicemembers and veterans with limb loss, including addressing aspects of polytrauma care.
4. We recommend additional research on prosthetic socket design to enhance fit, pressure distribution, comfort, suspension, and weight and to decrease pain and skin complications [4,7–9].
5. We recommend additional research on strategies to decrease rejection and abandonment of upper- and lower-limb prostheses, including devices that will decrease weight, provide greater range of motion, increase comfort, and improve suspension and fit [3,9].
6. We recommend the DOD and the VA support research to develop and validate instruments to measure functional status in servicemembers with upper- and lower-limb loss [3,6,9].

7. We recommend developing, pilot testing, and implementing an online satisfaction survey as part of the VA Limb-Loss Web site for recipients of VA limb-loss surgery and prosthetic services (VA or contract care) [4,8].
8. We recommend following the cohorts in this study over time to determine longitudinal changes in provision of limb-loss care service and satisfaction [3,8].
9. We recommend addressing the immediate need for better prostheses for servicemembers with shoulder and hip disarticulation, because the current devices are problematic [7,9].
10. We recommend widespread dissemination of findings from the Defense Advanced Research Projects Agency initiatives to clinicians and servicemembers with limb loss.

OTHER GENERAL RECOMMENDATIONS BY AREA

Policy

- We recommend providing timely and transparent processes to track VA compensation and benefits from the initial application until the award.
- We recommend electronic medical records be shared between the DOD and the VA.

Operations

We recommend increasing coordination of limb-loss care services between the VA and the DOD, as well as collaboration in rehabilitation, prosthetic education, and training. The VA paradigm shift in limb-loss care should be implemented by the end of fiscal year 2010.

Clinical

We recommend improving and integrating after-care with overall care of servicemembers with limb loss to include the subtle aspects of adjusting to life with prosthetic devices.

Veterans

- We recommend providing appropriate educational and recreational activity options for veterans with traumatic limb loss and enhancing their recreational therapy options.
- We recommend providing training and expectations about active participation in treatment teams.
- We recommend enhancing opportunities for peer mentors to work with veterans with limb loss.

ACKNOWLEDGMENTS

Members of the Expert Panel met by phone and in person during the study. Their contributions and insights included suggestions on survey design, prosthetic devices, function, transition probabilities, cost issues, and these recommendations. They also participated in data interpretation and manuscript preparation. Their involvement is sincerely appreciated. These recommendations are those of the Expert Panel and do not necessarily reflect the position or policy of the VA or DOD.

Gayle E. Reiber, PhD, MPH, for the Expert Panel*
Health Services Research and Development, Department of Veterans Affairs Puget Sound Health Care System, Seattle, WA; University of Washington, Seattle, WA

Email: Gayle.Reiber@va.gov

*See [Appendix 2](#), available online only.

REFERENCES

1. Sigford BJ. Paradigm shift for VA amputation care. *J Rehabil Res Dev.* 2010;47(4):xv–xx.
2. Arredondo J, Foote N, Pruden JD, McFarland MJ, McFarland LV. Wounded warriors' perspectives: Helping others to heal. *J Rehabil Res Dev.* 2010; 47(4):xxi–xxvii.
3. Reiber GE, McFarland LV, Hubbard S, Maynard C, Blough DK, Gambel JM, Smith DG. Servicemembers and veterans with major traumatic limb loss from Vietnam war and OIF/OEF conflicts: Survey methods,

- participants, and summary findings. *J Rehabil Res Dev.* 2010;47(4):275–98.
4. Berke GM, Fergason J, Milani JR, Hattingh J, McDowell M, Nguyen V, Reiber GE. Comparison of satisfaction with current prosthetic care in veterans and servicemembers from Vietnam and OIF/OEF conflicts with major traumatic limb loss. *J Rehabil Res Dev.* 2010;47(4):361–72.
 5. Laferrier JZ, McFarland LV, Boninger ML, Cooper RA, Reiber GE. Wheeled mobility: Factors influencing mobility and assistive technology in veterans and servicemembers with major traumatic limb loss from Vietnam war and OIF/OEF conflicts. *J Rehabil Res Dev.* 2010;47(4):349–60.
 6. Epstein RA, Heinemann AW, McFarland LV. Quality of life for veterans and servicemembers with major traumatic limb loss from Vietnam and OIF/OEF conflicts. *J Rehabil Res Dev.* 2010;47(4):373–86.
 7. Dougherty PJ, McFarland LV, Smith DG, Esquenazi A, Blake DJ, Reiber GE. Multiple traumatic limb loss: A comparison of Vietnam veterans to OIF/OEF servicemembers. *J Rehabil Res Dev.* 2010;47(4):333–48.
 8. Gailey R, McFarland LV, Cooper RA, Czerniecki J, Gabel JM, Hubbard S, Maynard C, Smith DG, Raya M, Reiber GE. Unilateral lower-limb loss: Prosthetic device use and functional outcomes in servicemembers from Vietnam war and OIF/OEF conflicts. *J Rehabil Res Dev.* 2010;47(4):317–32.
 9. McFarland LV, Hubbard Winkler SL, Heinemann AW, Jones M, Esquenazi A. Unilateral upper-limb loss: Satisfaction and prosthetic-device use in veterans and servicemembers from Vietnam and OIF/OEF conflicts. *J Rehabil Res Dev.* 2010;47(4):299–316.

DOI:10.1682/JRRD.2010.03.0031