Congressionally Directed Medical Research Programs

The Congressionally Directed Medical Research Programs (CDMRP) was organized in fiscal year 1992 (FY92) from a powerful grassroots effort to secure a congressional appropriation of funds for breast cancer research. This initiated a unique partnership among the public, Congress, and the military. The CDMRP has grown to encompass multiple targeted research programs and has received more than $11.17 billion in appropriations since its inception through FY16. Funds for the CDMRP are added by Congress to the Department of Defense (DoD) budget annually, with support for individual research programs allocated via specific guidance from Congress. The CDMRP executes programs such as the Orthotics and Prosthetics Outcomes Research Program (OPORP) on behalf of the DoD Defense Health Agency, Research, Development, and Acquisition Directorate, which provides health support across the full range of military operations.

Application Review Process

The CDMRP uses a two-tier review process for application evaluation, with both tiers employing dynamic interaction among scientists and disease survivors. The first tier of evaluation is a scientific peer review of applications measured against established criteria to determine scientific merit. The second tier is a programmatic review conducted by a programmatic panel composed of leading scientists, clinicians, and consumer advocates that compares applications and makes recommendations for funding based on scientific merit, adherence to the intent of the award mechanism, portfolio composition, and relevance to overall program goals.
History of the Orthotics and Prosthetics Outcomes Research Program (OPORP)

The stakeholders who met in 2014 to establish the OPORP forged the following charge: “Over the last 10 years of war, more than 1,500 Service members have suffered a major amputation. The vast majority of the acute care and initial rehabilitation of these Service members has occurred within the Department’s Advanced Rehabilitation Centers, which continue to provide rehabilitative techniques and advanced prosthetic technologies that facilitate maximum functional outcomes. Too little is known about which orthotic and prosthetic supports, treatments, and technologies generate the best outcomes for which patients. Continued research on orthotics and prosthetics outcomes can further improve care for Service members with limb loss and limb impairment and support evidence-based practice by allowing doctors to match Service members and Veterans with the orthotic or prosthetic that best works for them.”

Since its inception, the OPORP received $10 million in FY14, FY15, and FY16, for a total of $30M to facilitate research. Current investments are summarized in the figure below.

Awards Summary by Investment Type for FY14–FY15

- Basic/Discovery Research: 15%
- Epidemiology/Public Health Research: 9%
- Novel Outcome Development: 16%
- Clinical Trials: 18%
- Quality of Life Research: 3%
- Translational Research: 39%

Total Investment: $18,493,345
18 Awards
Scientific Peer Review Panel

The OPORP scientific peer review panels are composed of respected scientists and clinicians, as well as dedicated consumer advocates who are individuals living with limb deficit or loss. Scientific reviewers are selected for their subject matter expertise. Both scientists and consumers work together to provide an unbiased, expert review of the scientific and technical merit of the research proposals. This panel evaluates the potential impact of research projects on the care of patients and their families to inform project selection by the programmatic panel.

Consumer Participation

A unique aspect of the CDMRP is the active participation of consumer advocates throughout the program. Consumers are a vital part of all CDMRP programs, as they represent the collective views of survivors, patients, family members, and those affected by and at risk for a disease. The OPORP is particularly honored to provide opportunities for engagement and aid for those who have lost limbs during active duty service and who seek to regain normal function in civilian life.

“After being wounded during combat operations and living with multiple limb amputations, I can personally attest to the physical challenges of our severely injured Warfighters. The OPORP funds some of the most relevant research aimed to improve the quality of life for those suffering from extremity trauma and, ultimately, helps our injured Service members restore a greater level of independence. I am very proud to serve on the OPORP programmatic panel and help my peers overcome some of the physical challenges their injuries have presented.”

Sergeant Adam Kisielewski, USMC, Retired, Consumer Reviewer for OPORP
Programmatic Panel

All of the programs in the CDMRP try to involve stakeholders from academia, clinical services, government service (the Veterans Administration [VA], the DoD, the National Institutes of Health), and civilian life; the OPORP programmatic panel in particular is highly multidisciplinary. The panel has representation from physical and occupational therapists, prosthetists/orthotists, injured Service members, clinicians, and scientists, all of whom are striving to improve the outcomes of patients with orthotic and prosthetic devices. The potential for the funded projects to have immediate and direct impact leads to involved and synergistic discussion as the panel works to determine the best use of limited resources to optimize outcomes, while realizing that no orthosis or prosthesis yet replaces the human limb, and the “right device” may be different for each individual based on their activity level, individual needs, and lifestyle.

“I have had the pleasure and honor of participating in the OPORP as a reviewer. As the Chief of the Physical Medicine and Rehabilitation Service at Walter Reed National Military Medical Center, I am personally in charge of our amputee service. So I have first-hand experience in the need for advancing the level of technology for prosthetic devices, as well as treatment methods for amputees. The OPORP funds some of the most relevant research in these areas and has proven to serve a very important role in the care of our Wounded Warriors. The mechanism of the review that features expert civilian, military, and VA members has proven to work very well.”

LTC Keith P. Myers, MD, USMC, Programmatic Panel Member for OPORP

“As a rehabilitation clinician for 38 years working within both the DoD and VA, I have seen the challenges our Service members and Veterans face in recovering from serious musculoskeletal injury or illness. I have also witnessed the frustration of providers searching for best practices or better technologies to help their patients overcome debilitating loss of function, limb, or independence. It is a privilege to serve on the OPORP panel with a phenomenal group of military and civilian subject matter experts who are dedicated to funding the most-relevant, innovative, and fulfilling research aimed at improving musculoskeletal care, defining best practices, and developing technologies for our current and future generations of Warfighters and Veterans.”

COL Billie J. Randolph, PT, PhD, USA, Ret. Deputy Director, Extremity Trauma and Amputation Center of Excellence (EACE), Department of Veterans Affairs, Veteran’s Health Administration, Programmatic Panel Member for OPORP
Currently Funded Outcomes Studies

Determining the Potential Benefit of Powered Prostheses

Dr. Deanna Gates, from the University of Michigan, received an FY14 OPORP award for “Determining the Potential Benefit of Powered Prostheses.” This study is designed to join gait analysis with metabolic testing and activity monitoring in order to monitor function and mobility by comparing the BiOM Powered Ankle to standard clinical lower leg prostheses without powered ankles. The study will employ a crossover design, so that each patient will be able to personally experience the effect of a powered prosthetic in their daily lives and activities. Preliminary data show reduced muscle activity over the normal gait cycle for the gastrocnemius on the injured leg and the gluteus medius and the rectus femoris on the intact leg when using the powered ankle. It is not yet known whether this energy savings will translate into increased time to fatigue or increased activity for the average healthy patient. Dr. Gates has captured pilot data for a single patient and produced heat maps of intensity and location of activity for analysis to allow for individual comparisons in the amount and types of activities performed in normal daily life. The data provided as part of this work will provide clinicians with a wealth of information to guide future prosthetic prescriptions based on a patient’s lifestyle and daily needs.

Dynamic Corrective Force Device: A Balance Measure for Amputees

Liberating Technologies, Inc. (LTI), is both a research and development company and a manufacturer of components of upper- and lower-limb prosthetic devices for adults and children. Recently, Ms. Jennifer Johansson of LTI was awarded an FY14 OPORP award for her project, “Dynamic Corrective Force Device: A Balance Measure for Amputees.” Ms. Johansson proposes to develop a microprocessor-based system of sensors, including pressure-sensing insoles that will dynamically sense the centers of pressure and gravity of patients using lower-limb prostheses. This will enable clinicians to assess prosthetic function during the daily activities of amputees and provide an evidentiary basis to help guide prosthetic selection for a wide range of activities. It will also enhance the ability to monitor the performance of patients and prostheses as lifestyle and daily needs change and evolve.
Focus on Outcomes Research

“The Orthotics and Prosthetics Outcomes Research Program (OPORP) is an important equity that reflects a crucial effort to provide the best evidence-based medical and rehabilitation solutions for our injured Service members, their family members, and the health care providers who serve them. The studies funded by this program have the potential to immediately and positively impact those individuals who are living with extremity amputations or limb deficits, and also provide a foundation for improvements to orthotic and prosthetic devices.”

COL Teresa L. Brininger, Director
Clinical and Rehabilitative Medicine Research Program
U.S. Army Medical Research and Materiel Command
Programmatic Panel Member for OPORP

Focus Areas for the OPORP:

• Lack of short- and long-term evidence for existing support and reintegration strategies following neuromusculoskeletal injury, and a need for new evidence-based support and reintegration strategies

• Limited current technologies, including prosthetics and orthotics, for the rehabilitation or replacement of function that optimize patient interaction, usability, and durability

• Limited ability to predict, prevent, and mitigate development of secondary health deficits following neuromusculoskeletal injury

• Limited understanding of the management of patient rehabilitation strategies throughout the rehabilitation process following neuromusculoskeletal injury

• Lack of validated metrics that effectively assess initial presentation, rehabilitation, and reintegration following neuromusculoskeletal injury

For full details, please see the full program announcements at: http://cdmrp.army.mil/funding/oporp.shtml
For more information, please visit
http://cdmrp.army.mil
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