



background

The injuries of Operations Enduring and Iraqi Freedom (OEF/OIF) are shaped by the widespread use of improvised explosive devices (IEDs). IEDs increase the likelihood that active-duty Service members will be exposed to incidents such as blasts that can cause traumatic brain injuries and other debilitating injuries. Current war casualties are driving changes in health care needs and, therefore, changes in research and development.

The U.S. Army Medical Research and Materiel Command's establishment of the Clinical and Rehabilitative Medicine Research Program (CRMRP) enables active planning and coordination of an area of military research that has grown in importance during the recent conflicts. The CRMRP focuses on definitive and rehabilitative care innovations required to reset our wounded warriors in terms of duty, performance, and quality of life.

The CRMRP has 4 primary focus areas:

- Regenerative Medicine
- Neuromusculoskeletal Injury Rehabilitation
- **Sensory System Traumatic Injury Restoration and Rehabilitation**
- Pain Management

FOCUS ON:

sensory system traumatic injury restoration and rehabilitation

what & why

The Sensory System Traumatic Injury Restoration and Rehabilitation research portfolio includes Department of Defense efforts in the areas of visual, auditory, and vestibular dysfunction associated with traumatic injury, with a view ranging from basic research through clinical development. These efforts include research focused on sensory system dysfunction associated with traumatic brain injury (TBI).

Statistical research findings vary depending upon the source and population assessed but demonstrates the need to prioritize medical research focused on Sensory System Traumatic Injury Restoration and Rehabilitation:

- Combat ocular injury occurs from explosions with fragmentary munitions in 73-82% of cases (Mader TH, et al., *Ophthalmology* 2006; Thach AB, et al., *Ophthalmology* 2008).
- Thirty-eight percent of Warfighters with a polytrauma injury experience visual impairment. Of these injuries, those that were blast-related were associated with more cases of visual impairment (52%) (Goodrich GL, et al., *J Rehabil Res Dev*. 2007).
- Tinnitus and hearing loss are the most prevalent Service-connected disabilities for Veterans receiving compensation (Fiscal Year 2011 Annual Benefits Report, Veterans Benefits Administration).
- Service members exposed to blast with resultant TBI commonly report symptoms including dizziness and imbalance (Terrio et al., *J Head Trauma Rehabil*, 2009).

top priorities

Scientific Steering Committees are convened to identify and prioritize the current and future research needs of each focus area. Results of these discussions have led to the identification of capability gaps and priorities.

Research in the Sensory System Traumatic Injury Restoration and Rehabilitation portfolio is focused in the following areas:

- Understanding the etiology of sensory system traumatic injuries
- Mitigating and treating traumatic injuries, including TBI-associated sensory system dysfunction

- Developing new and improved diagnostic capabilities and assessment strategies
- Employing strategies to restore and/or rehabilitate patients following traumatic injury
- Pursuing epidemiological studies of sensory trauma, including correlative studies related to injury type, clinical outcomes, and co-morbid conditions
- Developing strategies for identifying and addressing co-morbidities associated with sensory system dysfunction

work in progress

Examples of research efforts in the Sensory System Traumatic Injury Restoration and Rehabilitation portfolio include:

- Identifying the molecular and physiological mechanisms of auditory dysfunction
- Pharmacotherapy and regenerative medicine-based approaches to improve healing and restore auditory function
- Developing and evaluating biocompatible materials, pharmacological therapies, and devices for the treatment of ocular injuries and restoring function
- Elucidating the molecular and physiological mechanisms underlying traumatic ocular injuries
- Developing, refining, and testing novel treatment strategies for TBI-associated sensory system dysfunction
- Clinical assessment of assistive technologies for vision, hearing, and balance

funding opportunities

Researchers are needed to investigate new ideas and develop new products to help diagnose and treat our wounded Warfighters and improve treatment outcomes and quality of life. Funding opportunities and program announcements can be found through the federal government's single-entry portal, <http://www.grants.gov>. CRM RP funding opportunities and program announcements for the Sensory System Traumatic Injury Restoration and Rehabilitation portfolio will also be posted on the Congressionally Directed Medical Research Programs website <http://cdmrp.army.mil> and/or the Telemedicine & Advanced Technology Research Center website <http://www.tatrc.org>.

Registration: www.grants.gov

User Guide: support@grants.gov

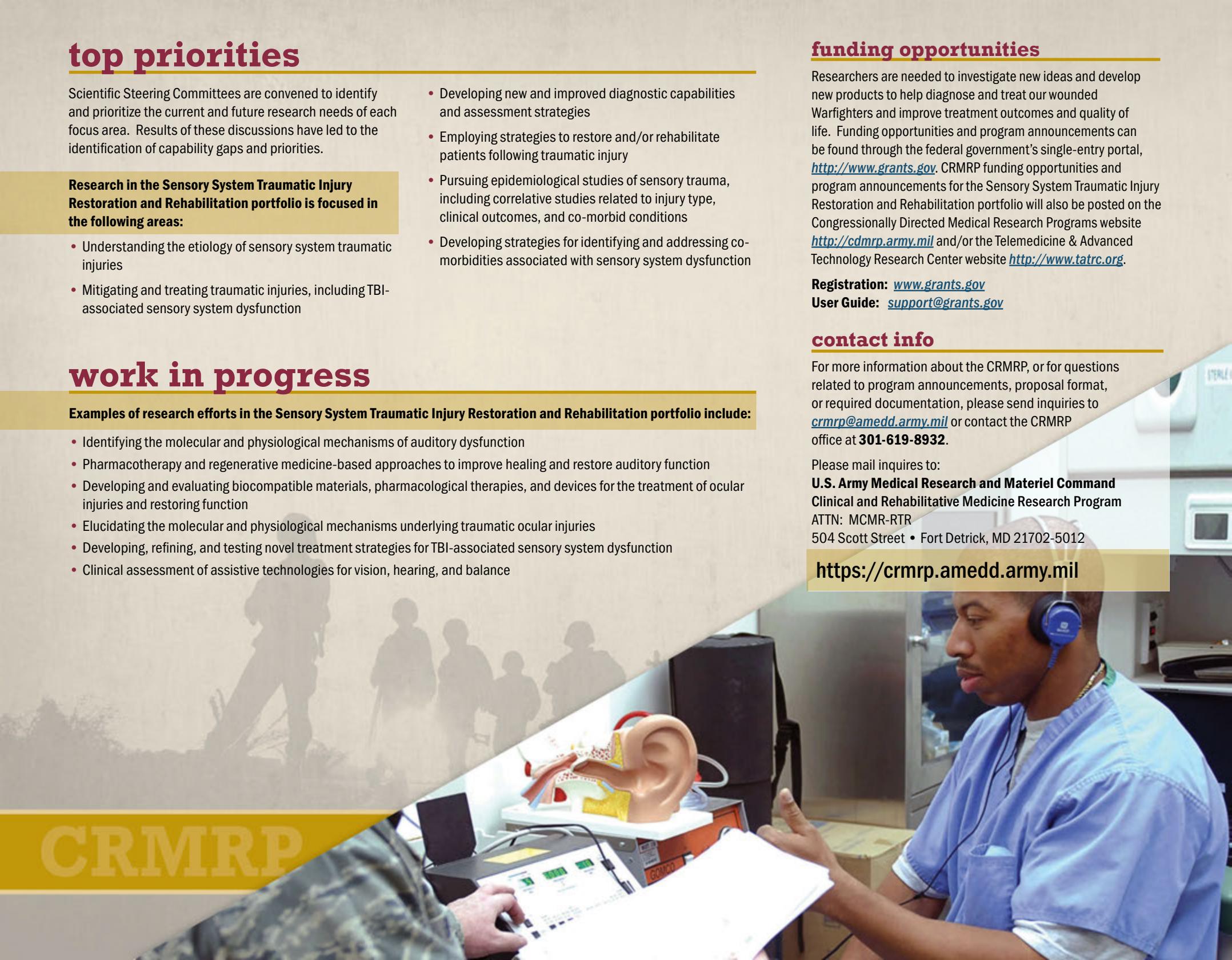
contact info

For more information about the CRM RP, or for questions related to program announcements, proposal format, or required documentation, please send inquiries to cdmrp@amedd.army.mil or contact the CRM RP office at **301-619-8932**.

Please mail inquires to:

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