



**BVA URGES CONGRESS TO FUND THE FISCAL YEAR 2022 DEPARTMENT OF DEFENSE
“PEER REVIEWED VISION RESEARCH PROGRAM” AT \$30 MILLION**

The Blinded Veterans Association (BVA) humbly requests Fiscal Year 2022 (FY22) appropriations of \$30 million for the Department of Defense (DoD) Congressionally Directed Medical Research Program (CDMRP) Vision Research Program (VRP), strengthening the “ONLY” research program focused on prevention and treatment of combat-related ocular trauma and Traumatic Brain Injury (TBI) visual dysfunction. The VRP was established by Congress in FY09 to fund impactful, military-relevant vision research with the potential to significantly improve the health care and well-being of service members, veterans, caregivers, and the American public. The VRP’s program area had previously aligned with the sensory systems task area of the JPC-8 Clinical and Rehabilitative Medicine Research Program, a core research program of the DoD Defense Health Agency (DHA) but this program was merged into the JPC-5/MOMRP resulting in less funding for deployment related sensory injuries.

Eye injury and visual dysfunction resulting from battlefield trauma affect many service members and veterans. Surveillance data from DoD indicate that eye injuries account for approximately 14.9 percent of all injuries from battlefield trauma sustained during the wars in Afghanistan and Iraq, resulting in more than 182,000 ambulatory patients and 4,000 hospitalizations. In addition, TBI, which has affected more than 413,898 service members between 2000 and 2019, can have significant impact on vision, even when there is no injury to the eye.

Research sponsored by the Department of Veterans Affairs (VA) showed that as many as 75 percent of service members who had suffered a TBI had visual dysfunction. The VA Office of Public Health has reported that, for the period October 2001 through June 30, 2015, the total number of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF)/Operation New Dawn (OND) veterans with vision problems who were enrolled in VA totaled 211,350. This number included 21,513 retinal and choroidal hemorrhage injuries (retinal detachments are part of this category); 5,293 optic nerve pathway disorders; 12,717 corneal conditions; and 27,880 with traumatic cataracts. VA continues to see increased enrollment of this generation with various eye and vision disorders resulting from complications of frequent blast-related injuries.

VA data also revealed a rising number of total Post-9/11 veterans with TBI visually impaired “ICD-10 Codes” enrolled in the VA Veterans Health Administration (VHA) system. In FY13, there were 39,908 enrollees identifying with symptoms of visual disturbances, and by FY15 those numbers increased to 66,968. Based on recent data (2000-2017) compiled by the TBI Defense Veterans Brain Injury Center (DVBIC), the reported incidence of TBI without eye injury with clinical visual impairment is estimated to be 76,900.

A January 2019 *Military Medicine* journal article, based on a 2018 study by the Alliance for Eye and Vision Research that used prior published data during 2000-2017, has estimated that deployment-related eye injuries and blindness have cost the US \$41.5 billion during that time frame. Some \$40.2 billion of that cost reflects present value of a lifetime of long-term benefits, lost wages, and family care.

On April 3, 2019, former DHA Director Vice Admiral Raquel Bono testified before the House Subcommittee on Defense (HACD), stressing the need for “specific research programs supporting efforts in combat casualty care, TBI, psychological health, extremity injuries, burns, vision, hearing and other medical challenges that are militarily relevant and support the warfighter.” This budget request proposes increased funding for battlefield injury research and establishes a permanent baseline for our mission-essential research.

Of note, CDMRP appropriations that fund this critical extramural vision research into deployment-related vision trauma is not currently conducted by VA, or elsewhere within DoD, including within the Joint DoD/VA Vision Center of Excellence

(VCE). To meet the shortage of VRP funding, the National Eye Institute (NEI) within the National Institutes of Health (NIH) funds only two VRP grants each year. Additionally, DoD continues to identify gaps in its ability to treat various ocular blast injuries. Thus, this funding is critical to meeting those challenges.

Previously, the US Army Medical Research and Materiel Command (USAMRMC) maintained an ocular health research portfolio, the goal of which was to “improve the health and readiness of military personnel affected by ocular injuries and vision dysfunction by identifying clinical needs and addressing them through directed joint medical research.” For more than two decades, the USAMRMC has held the only DoD J-09 internally funded active military Ocular Trauma Research Lab, located in San Antonio, Texas. BVA is alarmed that core internal funding is being shifted to other DoD research, leaving a larger gap in funding deployment-related vision injury research for our wounded service members.

Specific topics of interest in the portfolio included:

- Validated models to inform deployed treatment officials of blast ocular injuries and TBI-related visual dysfunction.
- Prolonged field-care and critical-care capabilities.
- Portable diagnostic tools for TBI vision dysfunction or penetrating injuries.
- Decision aids for unit-level, MEDEVAC en-route, and MTF care.
- Deployable ocular trauma medical treatment packages.
- Research into vision prosthetics and vision restoration devices.
- High energy weapons systems and ocular injuries.
- Regenerative medical techniques.

In its history, the VRP has funded two types of awards: hypothesis-generating, which investigates the mechanisms of corneal and retinal protection, corneal healing, and visual dysfunction resulting from TBIs; and translational/clinical research, which facilitates development of diagnostics, treatments, and therapies especially designed for rapid battlefield application.

CDMRP VRP funding has produced and/or developed:

- An “ocular patch,” nanotechnology-derived reversible glue that seals lacerations and perforations of the eye on the battlefield, protecting it while a soldier is transported to a more robust medical facility where trained ocular surgeons can properly suture the globe.
- A validated computational model of the human eye globe to investigate injury mechanisms of a primary blast wave from an Improvised Explosive Device (IED), which has accounted for 70 percent of the blast injuries in Iraq and Afghanistan. The model determines the stresses on and deformations to the eye globe and surrounding supporting structures to enable DoD to develop more effective eye protection strategies.
- A vision enhancement system that uses modern mobile computing and wireless technology, coupled with novel computer vision (object recognition programs) and human-computer interfacing strategies, to assist visually impaired veterans undergoing vision rehabilitation to navigate, find objects of interest, and interact with people.
- A portable, hand-held device to analyze the pupil’s reaction to light, enabling rapid diagnosis of TBI-related visual dysfunction.
- 21 patents and patent applications; 12 clinical trials funded by the VRP and/or based on the results of VRP-funded projects; and 216 peer-reviewed publications.

BVA believes the priority in DoD research is to “save life, limb, and eyesight,” which has been the motto of military medicine for decades. Therefore, along with other Veterans Service Organizations and Military Service Organizations, BVA respectfully requests that you support funding of the DoD/VRP Peer Reviewed Medical Research Program for extramural translational battlefield vision research in the amount of \$30 million for FY22.