



BVA URGES CONGRESS TO FUND THE FY21 DEPARTMENT OF DEFENSE “PEER REVIEWED VISION RESEARCH PROGRAM” (VRP) AT \$30 MILLION

The Vision Research Program (VRP) was established by Congress in Fiscal Year 2009 (FY09) to fund impactful military-relevant vision research that has the potential to significantly improve the health care and well-being of Service Members, Veterans, their family members and caregivers, and the American public. The VRP’s program area aligns with the Sensory Systems task area of the Clinical and Rehabilitative Medicine Research Program, a core research program of the Defense Health Agency (DHA).

Eye injury and visual dysfunction resulting from battlefield trauma affect many Service members and Veterans. Surveillance data from the U.S. Department of Defense (DoD) indicate that eye injury accounts 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 between 2000 and 2011. In addition, Traumatic Brain Injury (TBI), which affects 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 U.S. 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 enrolled in VA with visual conditions was 211,350; including 21,513 retinal and choroid hemorrhage injuries (including retinal detachment); 5,293 optic nerve pathway disorders; 12,717 corneal conditions; and 27,880 with traumatic cataracts.¹ The 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 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 (2000-2017) data 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 U.S. \$41.5 billion in that timeframe, with \$40.2 billion of that cost reflecting present value of a lifetime of long-term benefits, lost wages, and family care.

¹ VHA Office of Public Health OIF/OEF/OND Veterans Medical Encounters for Disorders Eye and Vision, FY 2002 to June 30, 2015 Enrollment Code data report.

On April 3, 2019 former DHA Director Vice Adm. Raquel Bono testified before the House Subcommittee on Defense (HACD), stressing the need for “*specific research programs supporting efforts in combat casualty care, traumatic brain injury, 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, the Congressionally Directed Medical Research Program (CDMRP) appropriations that fund this critical extramural vision research into deployment-related vision trauma is not currently conducted by VA, elsewhere within DoD – including the Joint DoD/VA Vision Center of Excellence (VCE), or the National Eye Institute (NEI) within the National Institutes of Health (NIH). Additionally, DoD continues to identify gaps in its ability to treat various ocular blast injuries. Thus, this funding is critical to meeting those challenges.

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 TBI; and translational/clinical research, which facilitates development of diagnostics, treatments and therapies—especially designed for rapid battlefield application. Research funded by the VRP has produced:

- 15 patents, patent applications, or provisional patents.
- 8 clinical trials funded by VRP and/or based on results of VRP-funded projects.
- 163 peer-reviewed publications in highly respected scientific journals.

VRP funding has also supported the development of:

- A portable, hand-held device to analyze the pupil’s reaction to light, enabling rapid diagnosis of TBI-related visual dysfunction.
- An “ocular patch,” which is a 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 (that is, 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.

The Blinded Veterans Association (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 (VSOs) and Military Service Organizations (MSOs), we respectfully request your support of the DoD/VRP Peer Reviewed Medical Research Program for extramural translational battlefield vision research in the amount of \$30 million for FY21.