# VISION RESEARCH PROGRAM



MISSION: Address clinical needs through innovative research targeting the mechanism, effects and treatment of service-connected eye injuries and vision dysfunction

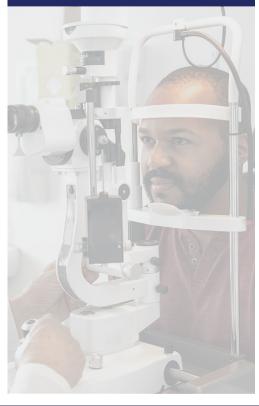
Congressional Appropriations FY09-FY24: \$205M total



"Military combat medics are charged with saving life, limb, and eyesight. Thanks to the emerging research from the

VRP portfolio, their available tools are continually expanding, and increasingly impactful rehabilitative opportunities realized."

Donald Overton, Blinded Veterans Association, FY24 VRP Programmatic Panel Member

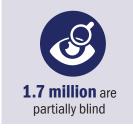


#### **SCOPE OF THE PROBLEM**

In the U.S., approximately **24 million** persons suffered eye injuries within their lifetimes. Of these:<sup>1</sup>

**1.5 million** are visually impaired





**147,000** are completely blind



### RELEVANCE TO MILITARY HEALTH

- Out of the 275,000 eye injuries endured by Service Members between 2000 and 2017, more than 6,000 of these injuries received a high risk status for blindness.<sup>2</sup>
- From 2000 through the third quarter of 2023, more than 490,000 Service Members received a diagnosis of traumatic brain injury.<sup>3</sup>
  - 65%–79% of traumatic brain injury patients report visual complaints.<sup>4</sup>

#### **PROGRAM PRIORITIES**

VRP aims to advance understanding and therapeutic development for vision injury through research that will:

- Understand and treat eye injury or visual dysfunction as related to military exposure
- Diagnose, stabilize, and treat eye injuries in austere environments and prolonged care settings
- Restore visual function after military exposure-related vision loss or severe visual impairment









<sup>&</sup>lt;sup>1</sup> Swain T, et al. Ophthalmic Epidemiol 27, no.3, 2020:186-193.

<sup>&</sup>lt;sup>2</sup> Frick KD, et al. *Mil Med* 184, no.5-6, 2019:e343.

<sup>3</sup> https://www.health.mil/Military-Health-Topics/Centers-of-Excellence/Traumatic-Brain-Injury-Center-of-Excellence

 $<sup>^4\,</sup>$  Merezhinskaya N, et al. *Optom Vis Sci* 96, no.8, 2019:542-555.

## **Research Breakthroughs - Making A Difference**











**Photovoltaic Subretinal Prosthesis** – Wireless, easy-to-implant and re-implantable device aims to restore functional vision in patients of retinal blindness



**Retinal Thermofusion** – Improves outcomes of retinal detachment repair surgery and enables immediate post-operative aeromedical evacuation



**Topical Losartan** –
FDA-approved

drug prevents scarring and reduces corneal haze post-injury



### CONNECTING RESEARCHERS THROUGH THE VISION INJURY RESEARCH FORUM

The VRP hosted the first forum in 2023 to share knowledge and breakthroughs in vision injury and research.

- Researchers, clinicians, and patient advocates
- Academia, military organizations, federal partners and private industry
- · Discussing needs of vision injury care for military populations and Veterans
  - 187 diverse stakeholders, including more than 40 DOD and VA medical providers
  - 34 poster presentations
  - 8 breakout discussions

