

# MULTIPLE SCLEROSIS RESEARCH PROGRAM



**MISSION:** To support pioneering concepts and high-impact research relevant to the prevention, etiology, pathogenesis, assessment, treatment, and ultimate cure of multiple sclerosis for the benefit of Service Members and their Families, Veterans, and the American public

**Congressional Appropriations  
FY09-FY24:  
\$153.1M total**



“Primary Progressive MS has impacted every aspect of my life, from being medically retired


from the military due to MS to struggling to balance my own health and employment after the military. I had a relatively quick transition from a cane, to a walker, to a wheelchair. After my military retirement in 2021, I found a home with Paralyzed Veterans of America. I was on the MS Committee working on connecting Veterans impacted with MS with the VA care they may not know about. Also, serving as a consumer reviewer has been a therapeutic experience. It’s really encouraging to read and hear and about all of the hard work going on behind the scenes to improve the lives of people with multiple sclerosis.”

*Paul Guzman,  
Paralyzed Veterans of America,  
FY22-FY23 Consumer Peer Reviewer*



## SCOPE OF THE PROBLEM

**~1 million**  
individuals impacted in the U.S.<sup>1</sup>

**\$85.4B**   
annual economic burden  
on healthcare<sup>2</sup>




Clinical manifestations are diverse, including **fatigue, numbness and tingling, motor deficit, visual loss and cognitive dysfunction**<sup>3</sup>

**Multiple sclerosis** impacts more women than men by a ratio of **3:1**<sup>1</sup>



## RELEVANCE TO MILITARY HEALTH

### Military Health System Medical Encounters from 2013-2022<sup>4</sup>

 Outpatient Encounters	 Inpatient Encounters	 Hospital Bed Days
<b>38,967</b> Service Members	<b>847</b> Service Members	<b>5,671</b> Service Members
<b>1,210,643</b> Other DOD Beneficiaries	<b>34,450</b> Other DOD Beneficiaries	<b>552,677</b> Other DOD Beneficiaries

The U.S. Armed Forces’ incidence rate of multiple sclerosis is higher per 100,000 people compared to the general population: 12.9 versus 7.5, respectively.<sup>5</sup>

## PROGRAM PRIORITIES

- Understand, measure and treat prodromal, relapsing and progressive aspects of multiple sclerosis
- Identify strategies for neuroprotection, repair and restoration of function
- Elucidate the cause and pathophysiology and develop treatment strategies for disease symptoms
- Identify various risk factors and their roles in etiology and disease course

<sup>1</sup> Wallin MT, et al. *Neurology*, 92, no. 10, 2019: e1029-e1040.

<sup>2</sup> Bebo B, et al. *Neurology*, 98, no. 18, 2022: e1810-e1817.7.

<sup>3</sup> <https://www.ninds.nih.gov/healthinformation/disorders/multiple-sclerosis>

<sup>4</sup> Armed Forces Health Surveillance Division data include both direct care (care received at Military Treatment Facilities) and purchased care (care received at civilian facilities that is covered by TRICARE). Data do not include care received while deployed or any care received outside of the MHS that was not processed through TRICARE.

<sup>5</sup> Deussing EC, et al. *Mil Med*, 117, no. 5, 2012: 594-600.



For more information, visit: <https://cdmrp.health.mil/msrp>

## PROGRAM IMPACT AND OUTCOMES

### ADVANCING CLINICAL IMPACT



#### PHARMACEUTICALS

- L-Histidine for Fatigue
- Intranasal Insulin for Cognition
- N-Acetyl Cysteine for Neuroprotection
- Ketamine for Fatigue



#### TECHNOLOGIES AND DEVICES

- Physical Telerehabilitation for Mobility
- Remote tDCS for Motor Learning
- MS CATCH for Depression
- tDCS for Cognitive Deficits
- Functional Balance Intervention



#### BEHAVIOR AND EXERCISE

- Exercise for Major Depression
- Diet and Calorie Restriction Intervention
- Online CBT for Fatigue
- Telehealth-delivered CBT for Insomnia

### IMPROVING PATIENT CARE

- **FDA Breakthrough Device Designation for Multiple Sclerosis Blood Biomarker Test**
- **Online Toolkit for Self-Management of Multiple Sclerosis Symptoms**  
<https://mymstoolkit.com>



### FILLING KEY KNOWLEDGE GAPS

The MSRP invests in several key projects that aim to understand the connection between **Epstein-Barr virus infection** and the **pathogenesis of multiple sclerosis**. This research could lead to novel diagnosis, prevention and treatment of this disease.

- **Analyzing EBV Genomes and Epigenomes**
- **Identifying EBV-Driven B Cell Inflammation and Trafficking**
- **Elucidating Age Dependence on EBV Infection and Development of Multiple Sclerosis**
- **Developing Anti-EBV Neutralizing Antibodies for Treatment**

### SUPPORTING EARLY IDEAS

- **Quantitative MRI for Cognition**
- **Link Between Multiple Sclerosis and Gut Dysbiosis**
- **Role of Energy Metabolism in Myelin Repair**
- **Suppressing Immune Response with Bioengineered Microparticles**



Point of Contact: CDMRP Public Affairs

[usarmy.detrick.medcom-cdmrp.mbx.cdmrp-public-affairs@health.mil](mailto:usarmy.detrick.medcom-cdmrp.mbx.cdmrp-public-affairs@health.mil)