

# VA-Academic Research Collaboration



FOR MORE THAN 75 YEARS, VA's unique collaboration with its academic partners has driven remarkable progress in scientific and medical fields, generating far-reaching advancements in healthcare for Veterans and the Nation. Based on VA's historic Policy Memorandum No. 2, which authorized affiliations between VA and U.S. medical schools and teaching hospitals, this enduring collaboration continues to apply new knowledge to develop effective, individualized care solutions for all generations of Veterans, address emerging health issues, and improve healthcare quality for the Nation.

## Nurturing Longstanding Collaboratives

Since the 1960s, the Clement J. Zablocki VA Medical Center, the Medical College of Wisconsin (MCW), and Marquette University have partnered on neurosurgery research focused on in-theater injury prevention, post-injury diagnosis and treatment, as well as increased quality of care for the aging Veteran population. Nearly 40 full-time staff at the VA Neuroscience and Biomechanics Research laboratories conduct multidisciplinary research in the areas of traumatic brain injury (TBI), spine-related pain disorders, spinal cord injury, basic science, clinical imaging, and head and spine injury biomechanics for the development of standards to improve human safety and quality of life. The ongoing collaboration among MCW, VA physicians, and biomedical scientists has successfully identified and solved injury-related issues that are a priority to VA, DoD, NASA, NIH, and others.

Another longstanding collaboration is the Advanced Platform Technology (APT) Center at the Louis Stokes Cleveland VA Medical Center, which addresses the clinical needs of disabled Veterans by designing, implementing, and disseminating new interventions in Prosthetics & Orthotics, Health Monitoring & Maintenance, Neural Interfaces, and Activity-Dependent Neurorehabilitation. Working with Case Western Reserve University's Schools of Medicine and Engineering, VA Investigators develop advanced assistive or restorative technologies that promote wellness and improve the quality of life for Veterans served by VA. The partnership has yielded innovations like the Uromonitor, which records bladder pressure and volume without the use of catheters for Veterans with incontinence, the iSens system, which restores the sense of touch and grasping ability after limb loss, and neuroprostheses to assist standing, stepping, and trunk stability.

## Advancing Cancer Research

VA researchers have long been interested in the causes of cancers, finding new treatments for different forms of cancer, and evaluating existing treatments. Academic affiliates have been critical to this work, joining with VA to address the most frequently diagnosed cancers in VA patients: prostate, lung and colon – as well as reproductive, skin and breast cancers, among others.

One of the most recent research achievements shows promise for treating pancreatic cancer, which often goes undetected until it has reached an advanced stage. Researchers with the Kansas City VA Medical Center and North Dakota State University have designed a new way to deliver cancer drugs that could make fighting the disease much easier. Encapsulating cancer drugs in nanoparticles shows the potential to target tumors more effectively while also avoiding damage to other parts of the body. Currently, the most effective treatment for this cancer is toxic to other parts of the body and quickly breaks down, limiting its effectiveness. To address these issues, researchers developed polymer nanoparticles that can release the drug once they reach cancer cells.

## Promoting Women's Health

Research on women Veterans' health has expanded in recent years in breadth and depth. Today, VA and its affiliates are working to build a broader and stronger evidence base across a woman's lifespan, yielding new research on primary care and prevention, reproductive health, complex chronic conditions and the long-term care needs of older women Veterans. Deployment and post-deployment health is a major focus of the VA women's health research portfolio, including a major longitudinal study called HealthVIEWS (Health of Vietnam Era Veteran Women's Study). The most comprehensive study to date on Vietnam-era women Veterans, HealthVIEWS estimated the prevalence of posttraumatic stress disorder (PTSD) and other mental and physical health conditions in approximately 10,000 women who served in the U.S. military during the Vietnam War— including those who served in Vietnam, in nearby countries, and primarily in the U.S.

HealthVIEWS also examined the relationship between PTSD and other conditions and the Vietnam deployment experience. Study findings will shape additional research focused on women Veterans and help plan future healthcare services. The numerous VA and academic partners in this nationwide effort include VA Boston Healthcare System; Boston University School of Medicine and School of Public Health; VA Palo Alto Health Care System; Stanford University School of Medicine; and University of Michigan School of Medicine, and the Medical University of South Carolina.



## Responding to the Signature Injuries of Recent Conflicts

Veterans wounded in Iraq and Afghanistan are surviving in greater numbers than in previous conflicts due to advances in body armor, battlefield medicine, and medical evacuation transport. As a result, more Veterans are living with disabling injuries, including the often lifelong effects of TBI. Many may also experience symptoms of psychological distress, such as PTSD. Working with its academic affiliates, VA is seeking new ways to address these and other health challenges impacting the newest generation of Veterans.

For example, the VA Connecticut Healthcare System and the Yale School of Medicine have partnered since the mid-1970's to better understand the neurobiology and treatment of PTSD. Their growing portfolio includes many firsts, from the discovery of a biochemical marker for PTSD, a placebo-controlled pharmacotherapy study to find treatments for PTSD, to the first genome-wide association study of PTSD symptoms, based on the Million Veteran Program (MVP). Since 1989, two Divisions of the VA's National Center for PTSD have been based at VA Connecticut and have provided homes for PTSD research, the Clinical Neuroscience Division (CND), and the Health Services Division (HSD). CND was the world's first major neuroscience initiative focused on developing new treatments, and with the establishment of the National PTSD Brain Bank, it continues to make fundamental discoveries; uncovering biomarkers of disease mechanisms, and shedding light on mechanisms of risk and resilience.

On TBI, VA and its academic partners are leading two high-powered consortia: the Chronic Effects of Neurotrauma Consortium (CENC) and Long-Term Impact of Military-Relevant Brain Injury Consortium (LIMBIC). Together, they include more than 100 researchers from 15 VA Medical Centers, 18 affiliate universities, and nine DoD facilities across 22 states. CENC addresses TBI and its outcomes, especially in Veterans and service members injured during service in Iraq and Afghanistan. LIMBIC will prospectively follow more than 3,000 Veterans and service members, representing all U.S. conflicts dating back to World War II. This research collaboration aims to address the diagnostic challenges and therapeutic ramifications of mild TBI and its potential long-term effects.

Learn more at [Research.va.gov](https://Research.va.gov)

## Highlighting Centers of Excellence and Innovation

A hallmark of VA's partnership with its academic affiliates is the numerous centers of excellence and innovation that have developed in response to emerging issues. One example is the Post-Deployment Cardiopulmonary Evaluation Network (PDCEN), a collaboration of expert clinicians and researchers in respiratory health among VA Medical Centers in Ann Arbor, Baltimore, Eastern Colorado, New Jersey, and San Francisco and their associated academic affiliates (University of Michigan, University of Maryland, University of Colorado/National Jewish Health, Rutgers University, and University of California — San Francisco). PDCEN sites work together to conduct specialized research and clinical evaluations that address Veterans' concerns about their post-deployment health, particularly unexplained shortness of breath or difficulty breathing. This process includes conducting specialty evaluations for Veterans selected from the Airborne Hazards and Open Burn Pit Registry.

Another example is the Center for Health Equity Research and Promotion (CHERP) which provides a solid foundation for addressing disparities in care. Veterans enrolled in VA healthcare are more likely to be from racial and ethnic minorities, older, and poorer than the general population in the U.S. Although VHA provides a healthcare safety net, disparities in health and healthcare exist for many vulnerable Veteran populations and are associated with increased risks of disability, illness, and death. Established in 2001, CHERP is a national VA Center of Innovation that focuses on detecting, understanding, and reducing disparities in health and healthcare in at-risk populations. Based in the VA Pittsburgh Healthcare System and the Corporal Michael Crescenz VA Medical Center (Philadelphia), CHERP has strong academic ties with the University of Pittsburgh School of Medicine and the University of Pennsylvania Perelman School of Medicine.



## Anticipating Future Healthcare Needs of Veterans and the Nation

Over 250 researchers from more than 75 academic institutions collaborate with VA researchers on scientific projects using data from MVP, one of the world's largest genetic and health databases. This futuristic program aims at fulfilling the promise of precision medicine while providing a foundation to address emergent diseases and conditions. VA clinicians and researchers with approved access to MVP data also have faculty appointments at School of Medicine of the world's most prestigious universities and medical schools, including Harvard, Duke, and Stanford. More than 100 peer-reviewed publications have resulted from MVP, and findings include new genetic variants for a wide range of chronic diseases including anxiety, PTSD, depression, heart disease, kidney disease, and several new variants identified for the first time in Black and Hispanic populations. With over 870,000 Veterans enrolled, MVP is looking to expand cohort diversity and focus on clinical translation of its findings.

The MVP has deployed a COVID-19 questionnaire to collect information about Veterans' experiences with COVID-19. In addition, MVP has prioritized a series of research questions to examine the genetic basis of infection by SARS CoV-2, complications of infection, disease severity and outcomes, and response to various medications. MVP is working to identify disease mechanisms and new treatment targets for COVID-19. Given MVP's racially and ethnically diverse participant population (~20% African American and 7% Hispanic), the influence of race and ethnicity on disease susceptibility, severity, and outcomes is an integral part of the analyses.

At the same time, and working closely with academic affiliates and federal government partners including the CDC, FDA, and NIH, VHA quickly ramped up its pre-existing capacity to conduct multi-site clinical trials, soliciting and receiving hundreds of suggestions from VHA clinicians for research to inform clinical care, leading to 400 research projects across 100 VA research sites and 1,348 published articles. Among these studies was the first-ever head-to-head comparison of the effectiveness of the Pfizer and Moderna mRNA vaccines conducted by the VA Boston Healthcare System and the Massachusetts Veterans Epidemiology Research and Information Center in collaboration with Harvard Medical School, Harvard T.H. Chan School of Public Health, Brigham and Women's Hospital, and Boston University School of Public Health.