

Improving Health Care through
Collaborative Research



DISCOVERY  INNOVATION  ADVANCEMENT

VA-ACADEMIC RESEARCH COLLABORATION

VA and its university partners working together
to advance the health care of Veterans and the nation.



Veterans  Health Administration
Research  Development
Improving Veterans' Lives  www.research.va.gov



A Message to Our Veterans

Vital Partnerships for Veterans' Health

In 1946, the passage of Public Law 79-293 allowed VA to greatly expand and enhance its physician workforce, enabling it to care more effectively for millions of returning World War II Veterans. Building on this effort, weeks later VA issued its historic Policy Memorandum No. 2, which authorized affiliations between VA and the nation's medical schools and launched a program that was “without precedent in the history of Federal hospitalization.” The initiative would pave the way for extraordinary strides in Veterans' health care and research.

In the 65 years since Memorandum No. 2 was signed, these public-private partnerships have enriched the learning environment in VA facilities as well as university medical schools and teaching hospitals; spurred remarkable progress in medical research; and achieved far-reaching improvements in health care for Veterans and all Americans.

Modern-day priorities for VA and its academic partners include conditions particularly common among Veterans returning from combat, such as posttraumatic stress disorder, traumatic brain injury, and spinal cord injury; and also chronic illnesses such as diabetes and hypertension, which are becoming more common as Veterans and other Americans live longer. **VA's thriving collaborations have magnified our research program's impact in these and many other important areas of health study, and have helped keep VA at the leading edge of health research and care in the 21st century.**

This brochure will give you a glimpse of some of the innovative health discoveries and advances being made by VA and academic researchers, and illustrate how these collaborative achievements are improving the lives of our nation's Veterans and their families.



Joel Kupersmith, MD
Chief Research and Development Officer
Department of Veterans Affairs

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1946 Public Law 79-293 is passed, allowing VA to greatly expand and enhance its physician workforce, and VA issues Policy Memorandum No. 2, providing the legal basis for clinical and research affiliations between VA and the nation's medical schools.

Common Causes: Superior Research and Care



VA's partnership with academic institutions can take much of the credit for training the next generation of health care providers and educators. Through its academic affiliations, VA conducts the largest education and training effort for health professionals in the United States. In 2010 alone, more than 115,000 students and residents received at least some of their clinical training in VA—in medicine, nursing, and some 40 other health professions.

Through its academic affiliations, VA nurtures health professionals and familiarizes them with the agency's vital mission on behalf of Veterans, while at the same time attracting the nation's best and brightest clinicians and researchers to the VA system. For their part, most VA investigators also teach at an affiliated university medical school, and in many cases provide patient care at the university's hospital.

VA-academic affiliations in research continually break new ground in medical understanding and lead to tangible improvements in patient care. Open the pages of any leading medical journal—the *New England Journal of Medicine* or the *Journal of the American Medical Association*, for example—and chances are it will include studies by authors with dual VA-academic affiliations.

Exemplars of Productive Partnership

A major legacy of Memorandum No. 2 is the many research Centers of Excellence nationwide that are under the joint auspices of the VA and an affiliated university. The following two examples represent a snapshot of the numerous collaborations under way to pioneer new treatments and advances in Veterans' health care.

Functional Electrical Stimulation Center

The FES Center—a collaboration of the Louis Stokes VA Medical Center, Case Western Reserve University, and the MetroHealth Medical Center—focuses on improving the quality of life for those with neurological or muscular skeletal impairments, including paralysis, by applying small electrical currents to generate or suppress nervous system activity. Currently, researchers at the FES Center are working on a project called the Networked Neuroprosthesis System, or NNPS, which would help some people with paralysis to move their arms while simultaneously controlling bladder and cough functions, or to control their legs and bladder simultaneously. The Center's research promises to translate into vast improvements in the lives of those with spinal cord injuries, stroke, and ultimately a wide range of additional health conditions.

“AAMC’s 65-year relationship with VA has enriched our clinical care, education, and research missions.”

Ann Bonham, PhD

Chief Scientific Officer, Association of American Medical Colleges (AAMC)

1966 **Public Law 89-785 is enacted**, establishing medical training as a formal component of VA's medical care mission and authorizing VA to enter into agreements with medical schools to share resources such as equipment, personnel, and lab space.

1972 **The VA Medical School Assistance and Health Manpower Training Act** expands existing medical education programs and facilities and establishes several new medical schools near existing VA hospitals.

1990 **The Friends of VA Medical Research** is founded to advocate for appropriate funding for research and other health programs serving Veterans.

Center for Restorative and Regenerative Medicine

CRRM researchers, representing the Providence (R.I.) VA Medical Center, Brown University, and the Massachusetts Institute of Technology, are working on devices and therapies to restore quality of life to Veterans and others who have been affected by conditions such as limb loss or severe limb injury, traumatic brain injury, and posttraumatic stress disorder. Some Center researchers are working on a system called BrainGate, which uses a tiny brain implant to pick up brain impulses related to movement. The signals are translated by a decoder into commands for electronic or robotic devices. BrainGate is being investigated for its potential role in boosting independence for Veterans with spinal cord injury, ALS (Lou Gehrig's disease), and other conditions resulting in paralysis. It is also being explored as a control system for the futuristic DEKA prosthetic arm.

Other work, conducted partly under the Center's auspices, has led to the development of an innovative "bionic" ankle-foot prosthesis that is now being fitted on injured Veterans and active duty service members.

Beyond collaborations between VA and its university partners, Centers of Excellence can also involve key partnerships with the Department of Defense. Another critical partner is the National Institutes of Health, which funds a significant portion of the research conducted by VA and academic researchers. Partnerships with other federal and nonprofit institutions, and with private industry, are crucial as well.

Array of Achievements

These are among the illustrious research strides attributable to current VA-academic affiliations:

- **Improving Post-Stroke Fitness and Movement.**

The VA-funded Maryland Exercise and Robotics Center of Excellence is a hub for stroke rehabilitation and research at the Baltimore VA Medical Center and its academic affiliate, the University of Maryland School of Medicine. The program works hand-in-hand with the Baltimore VA's Geriatric Research, Education and Clinical Center. Stroke researchers at the site are looking at issues such as the use of robots for stroke therapy, the effects of different types of exercise on walking ability, and the role of strength training in stroke recovery. In one recent Baltimore-based study, people who walked on a treadmill even years after suffering stroke damage achieved major gains in fitness and mobility, reflecting actual "rewiring" of their brains.

- **Helping caregivers.**

Researchers with VA and several universities conducted an effort called REACH, short for "Resources for Enhancing Alzheimer's Caregiver Health," to teach family caregivers how to reduce stress, solve problems, and manage difficult behaviors of family members with Alzheimer's disease. In REACH studies, improvements were shown across many areas, including improved emotional well-being overall and an hour a day gained away from caregiving duties, all at a relatively low cost. Based on these positive results, VA, led by a team at the Memphis VA Medical Center and University of Tennessee Health Science Center, is parlaying REACH into an ongoing nationwide program to help caregivers of Veterans with Alzheimer's. Also, the program is being modified to help the caregivers of those with spinal cord injury and traumatic brain injury.



1998 The Association of American Medical Colleges launches the Group on Research Advancement and Development.

2009 VA's Blue Ribbon Panel on VA-Medical School Affiliations issues a report titled "Transforming an Historical Partnership for the 21st Century."

2011 The 65th anniversary of VA Policy Memorandum No. 2 is commemorated during National VA Research Week.

For Web version of full timeline: www.research.va.gov

- **Zeroing in on Brain Disorders.**

The Center for Imaging of Neurodegenerative Diseases (CIND) is homing in on clues regarding neurodegenerative diseases—for example, Alzheimer's and Parkinson's disease—as well as deployment-related conditions such as post-traumatic stress disorder or Gulf War illness. Located at the VA medical center campus of the University of California, San Francisco, CIND involves researchers with expertise in clinical care, physics, and computer science. It is also home to the Neuroscience Center of Excellence—itsself a collaboration among the Department of Defense, VA, and NCIRE-the Veterans Health Research Institute, which supports studies at the San Francisco VA.

Toward the Future

VA looks forward to continuing its synergistic efforts with likeminded partners who embrace the opportunity to improve Veterans' health and lives through scientific discovery. As the past 65 years have shown, such partnerships are invaluable—enabling researchers to share and leverage resources, from equipment to expertise, in ways that significantly improve efficiency and productivity.

In recognition of this historic track record, and with an eye toward future endeavors, a VA-established Blue Ribbon Panel on VA-Medical School Affiliations recently recommended that VA redouble these collaborative research efforts.

Together with its partners in health research and patient care, VA has the unique potential to make pioneering discoveries in the laboratory and deliver them as quickly as possible to the patient's bedside. Though each generation of Veterans presents a new set of health challenges, the essential VA mission remains the same: discovering ways to enhance health care for those who have so selflessly served this country, and returning these courageous Veterans to their vital roles within their family and larger community.

Meet Three Visionary Collaborative Researchers

►► **Mingxiong Huang, PhD**

A leading expert in sophisticated methods of imaging and their use in brain disorders, Dr. Huang, with VA and the University of California, San Diego, recently led an important pilot study that found that a combination of two scanning technologies—magnetoencephalography and diffusion tensor imaging—can show subtle traumatic brain injuries that go undetected in conventional CT and MRI scans. Further work is now under way.

►► **Maren Scheuner, MD, MPH**

An expert in the rapidly evolving fields of genomic medicine and health information technology, Dr. Scheuner focuses on health services and policy research aimed at integrating genomic technologies into everyday practice. Based at the University of California, Los Angeles, and the Center of Excellence for the Study of Healthcare Provider Behavior at the VA Greater Los Angeles Health Care System, Dr. Scheuner is spearheading an effort to add family cancer histories to patients' electronic medical records. The effort may boost clinicians' ability to detect cancer early and target treatment.

►► **Rory Cooper, PhD**

Dr. Cooper's mission is to restore function to Veterans with spinal cord injuries. He is founder and director of the Human Engineering Research Laboratories, a joint VA-University of Pittsburgh program, which includes the VA Center of Excellence in Wheelchairs and Associated Rehabilitation Engineering. A longtime pioneer in wheelchair technology, Dr. Cooper is now leading the development of the Personal Mobility and Manipulation Appliance, a powered wheelchair with robotic arms and grippers that can be controlled by the wheelchair user or by an assistant via the Internet.

VA's Academic Affiliations at a Glance

- In 2010, more than 115,000 students and residents received some or all of their clinical training in VA—in medicine, nursing and some 40 other health professions—through affiliations between VA medical centers and more than 1,200 colleges and universities, including nearly 130 allopathic and osteopathic medical schools.
- 110 of these affiliations are with Hispanic Serving Institutions, Historically Black Colleges and Universities, or institutions designated by the Department of Education as serving Native Americans.
- More than 65 percent of U.S. physicians and 70 percent of U.S. psychologists and optometrists have had at least some of their training at a VA site.

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