

**STATEMENT OF
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Good morning Chairman Wenstrup, Chairman Bergman, and Members of the Subcommittees. I appreciate the opportunity to discuss the Department of Veterans Affairs' (VA) medical and prosthetic research program. I am accompanied today by Dr. Rachel Ramoni, Chief Research and Development Officer.

Introduction

VA's Office of Research and Development (ORD) has been improving the lives of Veterans and all Americans through health care innovation and discovery for more than 90 years. Working in accordance with Congressional authority, VA Research has made significant strides in the study of the unique problems faced by many Veterans. It is part of an integrated health care system that has come to be viewed as a model for superior bench-to-bedside research. The general research process in VA starts with a tight focus on the everyday health needs and concerns of Veterans, with consultation with national and regional VA clinical leaders, as well as with university partners and nonprofit organizations. Solutions are identified and developed through careful, rigorous research in labs, clinics, and the community. These solutions are then applied to patient care, or translated into new or improved programs, as rapidly as possible.

Since its inception, VA Research has contributed to groundbreaking advances, including the first successful liver transplant, the pacemaker, and the approval of the first shingles vaccine in the United States. VA continues to conduct cutting-edge

research such as the development of a bionic ankle that helps propel users forward, the creation of the Million Veteran Program (MVP) precision medicine initiative, and groundbreaking work to repair severed spinal cords. VA has sponsored cutting-edge studies on the treatment of depression, high blood pressure, heart disease, and Posttraumatic Stress Disorder (PTSD). These achievements have resulted in three Nobel prizes, seven Lasker Awards, and numerous other national and international honors.

VA's Partnerships

In 1988, Congress passed Public Law (P.L.) 100-322 (now codified under 38 United States Code 7361-7366) authorizing the establishment of Nonprofit Research and Education Corporations (NPC) at VA medical centers (VAMC), laying the foundation for the creation of unique partnerships to conduct VA-approved research. NPCs are nonprofit, 501(c)(3), state-chartered entities that facilitate VA research and education. NPCs provide a flexible funding mechanism for the administration of research and education funds other than those funds appropriated to VA. Now, 30 years after they were authorized, NPCs have become a fundamental part of achieving VA's mission by expanding our ability to form successful partnerships.

There are currently 83 NPCs located throughout the United States and in Puerto Rico. They are a diverse and active set of institutions, which continually obtain funding from a range of sources, including private sector, charitable foundations, individuals, state and local governments, universities, and Federal entities such as the National Institutes of Health, Department of Defense (DoD), and Centers for Disease Control and Prevention. In June 2017, NPCs reported \$266 million total revenues during the 2016 reporting period, the majority of which came from non-VA Federal agencies. After paying their own administrative expenses, NPCs have collectively contributed \$2.2 billion to VA Research over the last decade. VA has oversight responsibility for the NPCs. ORD has an active relationship with National Association of Veterans' Research and Education Foundations (NAVREF). NAVREF is an advocacy and membership association for NPCs. NAVREF's mission is to advance the success of VA-affiliated

NPCs. Recently, NAVREF and ORD worked together for months to execute a Stakeholder Summit on *Enabling Access to Clinical Trials* on April 19, 2018, that brought together NPCs, industry representatives, advocacy groups, and VA representatives in an effort to decrease the time it takes to bring clinical trials into VA.

NPCs are part of a fabric of interactions that work to advance discovery in service of our Veterans. Since 1946, when General Omar Bradley, Administrator of VA, forged a pioneering partnership with the Nation's medical schools, academic affiliates also have been part of this fabric. The partnerships with universities and medical schools have given VA access to cutting-edge technology, expertise, and national research networks that would be difficult and inefficient to duplicate within VA. For example, the spinal cord repair program previously mentioned is rooted in a healthy partnership with the University of California system. VA is affiliated with well over 90 percent of Doctor of Medicine and Doctor of Osteopathy-granting medical schools. VA's health profession education activities also include affiliations with over 1,800 schools of nursing, pharmacy, psychology, and other health professions. The vast majority of VA investigators have appointments at both VA and an academic affiliate. Through these affiliations and VA's own sponsorship of selected programs, over 127,000 trainees in health professions received supervised clinical education in VA facilities last year.

VA Research also has robust interactions with other Federal agencies. For example, VA and DoD are jointly funding both the Chronic Effects of Neurotrauma Consortium and the Consortium to Alleviate PTSD. The National Cancer Institute (NCI) is funding NAVIGATE, a multi-million dollar interagency agreement, to bring more NCI trials to Veterans in VA. Notably, the funding from NCI will be administered by NPCs. In collaboration with the National Institute on Neurologic Disorders and Stroke, we will be launching the first effort to deeply characterize Gulf War Illness in Veterans living with this condition. VA also has a partnership with the Department of Energy (DOE) where approved world-class data scientists at DOE are analyzing MVP data on the world's most powerful computers.

The continued vitality of VA Research depends upon a broad array of partnerships, including the NPCs, academic affiliates, and other agencies. VA is

committed to ensuring that these partnerships serve the well-being of VA and Veterans by making sure that they are balanced and are responsive to the dynamic local VAMC context. To understand the challenges of NPCs to facilitate extramural funding and work with VA's university affiliates, ORD contracted with Westat Inc. to have a thorough review of the NPC-academic affiliate-VAMC relationships. The review is scheduled to be completed in September. It will represent the first effort to go from anecdotal reports from individual NPCs and VAMCs to a comprehensive understanding of these important relationships.

VA Research's Focus on Veterans Issues

ORD evaluates proposed research projects by conducting scientific peer review to the highest standards. Funding decisions are awarded based on their ability to meet our service mission and priorities for Veterans health care needs. Funding review criteria are explicit: research must address an important scientific question and must advance the health and health care of Veterans. Projects that are not Veteran-centric do not receive funding.

VA's MVP is an example of our enduring commitment to understanding Veterans' health. Planning for this massive project began in 2009. To date, over 650,000 Veterans have joined MVP to help uncover the contributions of genetics to the well-being of Veterans. Each one of those many hundreds of thousands of people has completed a questionnaire and contributed a blood sample. Through MVP, VA investigators are conducting research on genetic risk factors for PTSD, suicidal behavior, tinnitus, and Gulf War Illness.

ORD is unique in its focus on Veterans' health and in its deployment in the context of the Veterans Health Administration, America's largest integrated health care system. The work ORD funds informs the learning health care system lifecycle, which ensures that VA continues to provide high-quality care to Veterans. In a learning health care system, care is continuously improved through new research and clinical findings. In this way, VA Research serves as an engine to accelerate this cycle of continuous improvement.

While VA's medical and prosthetic research program focuses on benefiting current and future Veterans, the output of VA Research ultimately affects the entire Nation. ORD tracks major study findings, internal and external publications, and media press releases. The following list includes a selection of the substantial research launches and outcomes in 2017 alone:

- Began a nationwide study of the health benefits of a robotic exoskeleton for Veterans with spinal cord injury.
- With DoD funding and in partnership with non-VA sites, launched a test of stem cells as a possible treatment for a common form of heart failure.
- Reported on the first stages of a major study, conducted under the auspices of the Chronic Effects of Neurotrauma Consortium, on the long-term effects of mild traumatic brain injury.
- Partnered with other Federal agencies to fund \$81 million in new research on non-drug treatment of pain for military personnel and Veterans.
- Determined that a physical-environment checklist used in VA psychiatry units led to a sharp decline in inpatient suicides.
- Published a study showing that prolonged exposure therapy delivered directly into patients' homes via telehealth could "dramatically increase the reach of this evidence-based therapy for PTSD without diminishing its effectiveness."
- Demonstrated significant progress in restoring a natural sense of touch for those who use prosthetic hands.
- Created technology—surgically implanted neurostimulators—that allowed a man paralyzed by spinal cord injury to pedal his way to a gold medal at the first international Cyborg Olympics.
- Contributed to advances in a brain-computer technology that now allows fast, accurate typing by people with paralysis.
- Enabled a patient with tetraplegia to reach and grasp, through the combination of functional electrical stimulation and a brain-computer interface.

- VA's research portfolio is continually rebalanced over time to meet the most pressing needs of Veterans. During 2017, VA's research priorities emphasized improving care for Veterans throughout their life span, beginning with the new Veteran leaving service up through the aging Veteran seeking to maintain health and function. A robust health services research program will continue to improve the way VA delivers health care and the methods through which Veterans can access VA services as well as care within other community-based settings.

VA Research in the Clinical Context

VA Research has an impressive track record of transforming VA health care by bringing new evidence-based treatments and technologies into everyday clinical care. The following are key examples of these successful implementations that were based on VA-sponsored research published within the past 5 years:

- Providers in VA Integrated Service Networks (VISN) 7, 16, 20, and 23, are deploying Telemedicine Outreach for PTSD, which is a program based on research conducted in VA that demonstrated the effectiveness of virtual team-based care for rural Veterans with PTSD.
- Providers at the West Haven, Denver, and Palo Alto VAMCs are implementing stepped care for pain treatment based on a model previously shown to be effective in pain management for Veterans.
- Providers at VA Boston and West Haven are implementing the VA National Bipolar Disorders Telehealth Program, which is based on a collaborative care model developed by VA researchers that was shown to improve health outcomes among individuals with bipolar and other mental disorders.
- VA has hired onto clinical teams over 1,100 mental health Peer Specialists—Veterans with mental illness who are trained to use their experience to help other Veterans with mental illness. This Peer Specialist model has been found to increase patient activation and is valued by Veteran patients and VA providers.

- Providers at the VA Greater Los Angeles Healthcare System are also implementing an integrated care program previously established in VA research to improve mental health quality and outcomes among women Veterans with anxiety and depression treatment needs. This is an example of a larger program (Primary Care-Mental Health Integration) that was nationally implemented in VA and based on VA research on effectiveness of collaborative care for depression, PTSD, and substance use risk management in primary care.
- The Hospital-to-Home campaign (H2H) initiative was implemented by providers and based on prior VA research and resulted in a decline in 30-day readmission rates and reduction of 21,000 hospital days each year, which translates to cost savings of approximately \$18 million per year.
- In partnership with leaders from the VA National Center for Health Promotion and Disease Prevention, VA providers across the United States are implementing the updated VA MOVE! weight management program guidance based on work by investigators at the Durham and Ann Arbor VAMCs.
- Providers in VISNs 1, 5, and 19, were trained in the Department of Housing and Urban Development-VA Supportive Housing and Homeless Patient Aligned Care Team staff on Maintaining Independence and Sobriety through Systems Integration, Outreach, and Networking (MISSION) Model. MISSION is an evidence-based Veteran-centric intervention developed within VA and delivered by case managers and peer specialist to address mental health, substance use, and homelessness.
- VA recently implemented a new suicide prevention clinical initiative that utilizes predictive modeling and existing medical record data to identify Veterans at highest risk of suicide; this program is entitled Recovery Engagement and Coordination for Health – Veterans Enhanced Treatment (REACH VET). REACH VET coordinators at each facility are responsible for monitoring the REACH VET dashboard that identifies those at high and moderate risk for suicide and tracking next steps for coordinators and

providers. Following identification of patients at risk, coordinators notify each patient's provider of their high-risk status and orient the provider to the dashboard. Providers are required to re-evaluate the patient's care, determine if care enhancements are needed, and contact the patient.

- Providing the most advanced upper extremity prosthetic arm to Veterans with limb loss, ORD was the clinical partner in Defense Advanced Research Projects Administration's (DARPA) Revolutionizing Prosthetics program. The industry partner under contract to DARPA was Dean Kamen (DEKA) Research and Development Corporation. ORD conducted optimization and take home-home trials of the DEKA arm (now known as LUKE arm). This research data supported a Food and Drug Administration (FDA) premarket submission and FDA's eventual grant of marketing authorization in 2014, which ultimately led to commercialization of the LUKE arm by MOBIUS bionics for Veterans and the Nation. Two Veterans each received a LUKE arm in June 2017. A historical note of significance is that upper extremity prosthetics had not seen major improvements in over 50 years.

VA Research is unique in its focus on the health, health care, and well-being of Veterans. We strive to relentlessly pursue knowledge and real-world innovations that benefit Veterans and the Nation through focus, efficiency, and high-value partnerships.

Conclusion

VA's medical and prosthetic research program has significantly improved the care and well-being of our Veterans. These gains would not have been possible without consistent Congressional commitment in the form of both attention and financial resources. It is critical that we continue to move forward with the current momentum and preserve the gains made thus far. Your continued support is essential to providing cutting-edge, high-quality care for Veterans and their families. Mr. Chairman, this concludes my testimony. My colleague and I are prepared to answer any questions.