

# 2015 Annual Research Report

VA NEW ENGLAND  
HEALTHCARE SYSTEM



**VA**



U.S. Department  
of Veterans Affairs

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***The mission of the Veterans Health Administration (VHA) is to “Honor America’s Veterans by providing exceptional health care that improves their health and well-being.”***



## A Message from the Network Director

All of us within the VA New England Healthcare System (VISN 1) share a mission—to provide the best available care to our deserving Veterans. We achieve that through relationships with research partners in the community, in the medical field at large, and with our academic partners.

On page 4, for example, learn how VA efforts are helping establish standards of care, and how partnerships in the Precision Oncology Program are bringing cutting-edge cancer treatments to Veterans by identifying gene mutations.

Page 6 provides an overview of the DEKA Arm Home Study, which entails a new device that can help amputees return to a fuller life. Genetics take center stage in another research arena—one that links the SKA2 gene to certain brain scan properties and the potential for post-traumatic stress disorder (PTSD), which we see in some returning Veterans. Read more on page 8.

Of course, we are always eager to learn better ways to care for Veterans. Some new methods come through discoveries in our Career Development Award (CDA) Program, which is described on page 10. Another valuable means of research involves the Cooperative Studies Program (CSP). One such effort, discussed on page 12, is CSP 590. This program looks at lithium's potential to reduce suicidal behavior, which is important to Veterans and their families.

Our VA New England research experience is changing lives, just as we are changing to keep pace with advances in medicine. Regionally, Manchester VA Medical Center (VAMC) is one of several facilities that revamped its research program, as described on page 14. Nationally, VA was one of the first health care providers for those with human immunodeficiency virus (HIV), and the Veterans Aging Cohort Study (see page 18) continues to make significant advances in this arena.

Current research efforts conducted by CDA recipients include those featured on page 16 (*Win/Win for Veterans with PTSD Who Smoke*), page 20 (*Increased Testosterone Use Prompts Research*), and page 22 (*Improving Visual Memory for Schizophrenia Patients*).

Finally, another nod to clinical trials comes in the form of four important cardiovascular clinical trials, which we discuss on page 24.

I remain proud of **all** our research efforts in VISN 1 that bring hope and healing to our national Veterans.

Sincerely,  
Michael F. Mayo-Smith, M.D., M.P.H.  
Network Director



**THE VA NEW ENGLAND HEALTHCARE SYSTEM** is one of 21 Veterans Integrated Service Networks (VISNs) within the U.S. Department of Veterans Affairs (VA). Services are provided through primary care supported by eight Joint Commission accredited medical centers. We are located throughout the six New England states – Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. VISN 1 has over 35 Community-Based Outpatient Clinics (CBOCs), six nursing homes, and two domiciliaries.

# Funding 2007–2015

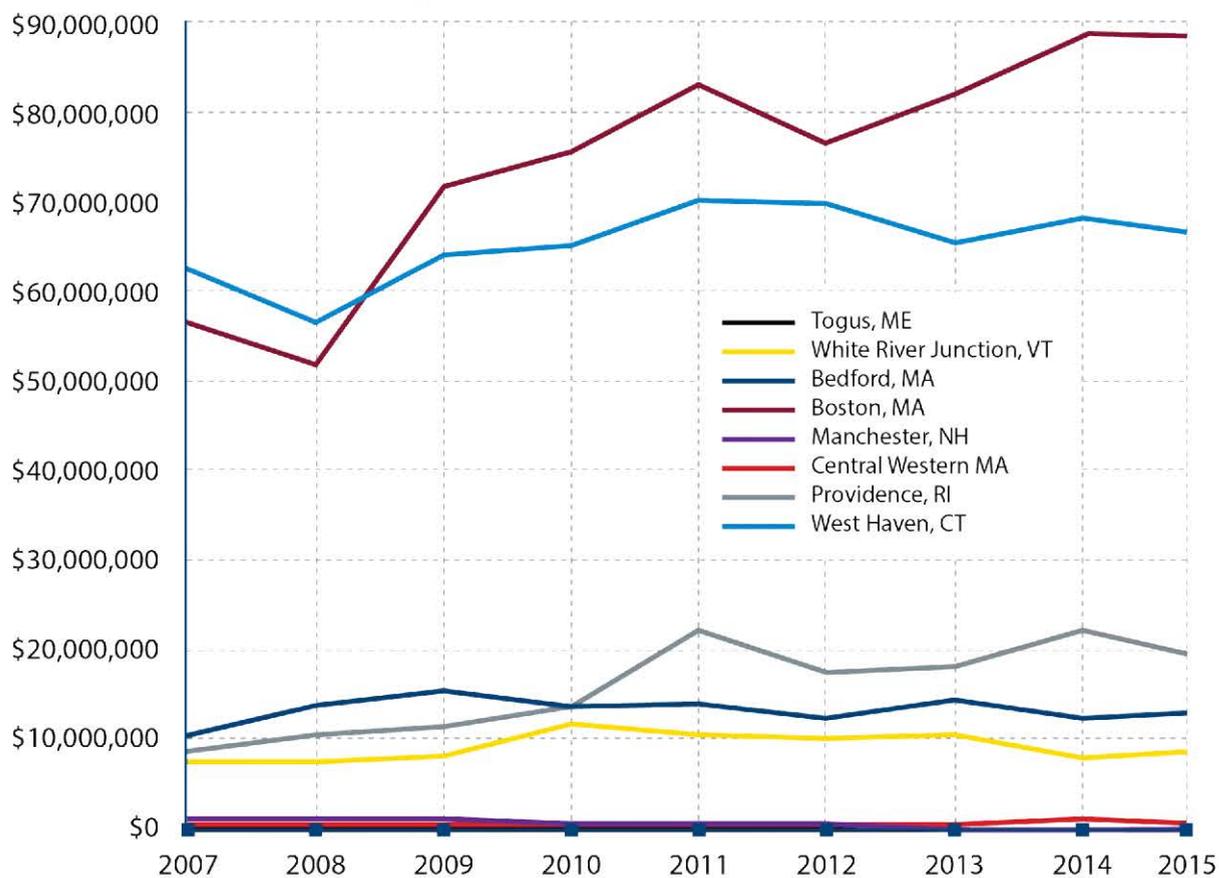
## VISN 1 RESEARCH FINANCIAL REPORT

VERA + Expenditures in VISN 1 2007 – 2015



## VISN 1 RESEARCH FINANCIAL REPORT

VERA + Expenditures VISN 1 Facilities 2007 – 2015



# Academic Partners and Affiliations

## Academic Affiliates

- Boston University School of Medicine
- Brown Medical School
- Dartmouth Medical School
- Harvard Medical School
- Tufts University School of Medicine
- University of Connecticut School of Medicine
- University of Massachusetts School of Medicine
- University of New England School of Osteopathic Medicine
- University of Vermont School of Medicine
- Yale University School of Medicine
- Tufts University, Lesley College, Worcester State University, Salem State University, Endicott College, UMASS Boston, UMASS Lowell, Massachusetts College of Pharmacy, Massachusetts College of Optometry, and Boston College
- Harvard Medical School and Boston University School of Medicine, as well as with Brigham and Women's Hospital, Boston Medical Center, Beth Israel Deaconess Medical Center, Massachusetts General Hospital, Massachusetts Eye and Ear Infirmary, and Spaulding Rehabilitation Center

## National Accreditation Organizations:

- The Joint Commission
- Commission on Accreditation of Rehabilitation Facilities (CARF)
- National Committee for Quality Assurance (NCQA)
- College of American Pathologists (CAP)
- American Psychological Association
- American Dental Association for Advanced Dental Education
- Association for the Accreditation of Human Research Protection Programs (AAHRPP)
- Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC)
- American Association of Blood Banks (AABB)





**LOUIS FIORE, M.D., M.P.H.,** is the executive director of the Massachusetts Veterans Epidemiology Research and Information Center (MAVERIC) and the VISN 1 Precision Oncology Program director. He is also a professor of medicine, Boston University School of Medicine, as well as professor of public health, Boston University School of Public Health. Dr. Fiore has served as a mentor to many students and residents in the VA Boston Health Care System. Beyond his responsibilities as a mentor and doctor, he has developed and funded research missions to Nicaragua for seven years through his non profit, *Lowering Poverty and Disease in Southern Nicaragua* ([www.lpd.com](http://www.lpd.com)). The project introduces students to pragmatic work in a developing country while helping alleviate disease and poverty. Dr. Fiore earned Boston University's 2015 Office of Academic Affairs' Voluntary Faculty Award of Excellence for his volunteer public health projects in Nicaragua.

## Precision Oncology Program: A Learning Health Care System

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VA New England's Precision Oncology Program (POP), which is part of the Clinical Trials Network, is bringing cutting-edge cancer treatment to Veterans by identifying gene mutations and matching patients to personalized care based on how other patients with similar mutations respond to treatments. The POP includes a data repository oncologists can access to help determine if patients are a good match for clinical trials within and outside of VA, which may eventually lead to new treatment options.

Initially created for VISN 1 Veterans with lung cancer, the Precision Oncology Program is rolling out nationally and encompassing other types of cancer.

"We developed the program to sequence lung cancer patients' tumors so we could match them to clinical trials," says POP director Louis Fiore, M.D., M.P.H. "Precision oncology is the most advanced area in precision medicine, so it is an exciting time." Precision medicine gained momentum in 2015 when President Obama unveiled his Precision Medicine Initiative, which mentions sequencing technologies to advance health care and disease treatment.

"We've been doing that for several years," Dr. Fiore says, "so VA is helping establish precision medicine as the standard of care."

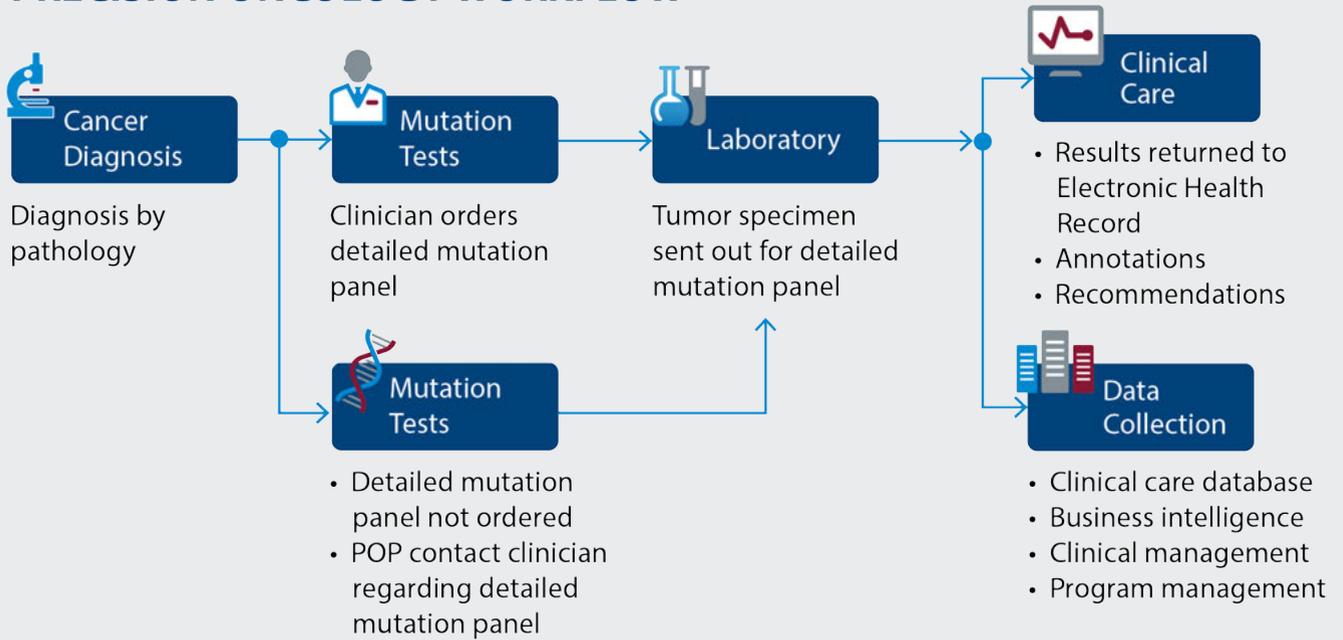
Dr. Fiore emphasized the POP's alignment with VA's Blueprint for Excellence strategies, which help ensure Veterans get the care they have earned through their service and sacrifices.

"This program inspires VA workers. We do it well, and it fits with VA's core mission of putting Veterans first. Partners accomplish together what they cannot do individually. For example, pharmaceutical companies are trying to develop compounds but don't have access to patients or patient data," explains Dr. Fiore. "The data repository lets them learn how to better provide for patients within the VA and nationally, which may result in more effective drugs." He says the repository is also critical because VA doctors at large medical centers and small facilities can participate equally, learning to treat current and future patients by studying similar patients.

Dr. Fiore believes the POP and similar programs point to the future of research.

"We must bring clinical care folks and researchers together in a common environment where we can quickly learn what works and institute it pragmatically instead of just publishing results in journals. This program does exactly that with clinical oncologists who are taking care of patients and researchers who are testing drugs. It is a *learning health care system*, evolving with clinic care and research arms."

## PRECISION ONCOLOGY WORKFLOW



*“This program inspires VA workers. We do it well, and it fits with VA’s core mission of putting Veterans first.”*



*Front to back, left to right: Helene Garcon, Karen Pierce-Murray, Colleen Shannon, Beth Katcher, Bob Hall, Valmeek Kudesia, Ned Peirce, Lou Fiore, and Alex Shayan.*



**LINDA RESNIK, P.T., Ph.D.** is a VA research career scientist based at the Providence VA Medical Center (PVAMC) and professor (research) in the Department of Health Services, Policy and Practice at Brown University's School of Public Health. She is a member of PVAMC's Rehabilitation Research Center of Excellence, the Center for Neurorestoration and Neurotechnology, where she leads the Focus Area on Restoration of Motor Function: Translating Advanced Arm Prosthetics for Limb Loss. Dr. Resnik is also principal investigator of the Center on Health Services Training and Research (CoHSTAR), a multi institutional, multi disciplinary center dedicated to advancing health services research capacity in physical therapy.

## Prostheses Studies Helping Restore Function to Amputees

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Most Veterans with combat-related upper extremity amputations receive care in VA facilities. Returning them to full work, leisure, and social activities has been challenging due to upper limb prostheses that are slow, cumbersome, and unnatural.

"Devices on the market haven't offered many degrees of freedom of movement," explains Linda Resnik, P.T., Ph.D., and people won't use a device that isn't useful or comfortable.

New technology is helping change that, and Providence VA Medical Center is conducting studies of a state-of-the-art prosthetic device called the DEKA Arm. Some of its differentiating features include a multifunctional hand with six grip patterns, a powered wrist that moves in two directions, and elbow or shoulder movements for higher-level amputees. Most devices are operated by foot controls (unique to the DEKA Arm), sometimes in combination with other more conventional controls.

Following a VA study of the prototype device in which subjects used the prosthesis in labs under supervised conditions, VA funded a four-year Home Study to determine the usefulness and acceptability of the device in users' homes. The Home Study—currently recruiting subjects at study sites in New York, Florida, and Texas—demonstrates the VA's commitment to cutting-edge prosthetic technology.

Dr. Resnik, principal investigator, designed the studies for the DEKA Arm. "Providence VA's role includes training sites to collect data, establishing the protocol, supervising study activities, and analyzing data," she says. "People complete an in-laboratory study and then take the device home for three months' use if they are appropriate candidates. Conducting the study at multiple sites allows more Veterans to participate."

Study findings may help move the DEKA Arm closer to dissemination of the device within the VA system of healthcare.

"A recent grant renewal will let us continue for several more years," says Dr. Resnik. "It will focus on a new type of control called EMG pattern recognition we are just starting to integrate with the DEKA Arm. That study will involve only the James A. Haley VA Medical Center in Tampa."

The U.S. Food and Drug Administration approved the DEKA Arm for marketing in 2014 after reviewing clinical information suggesting that the majority of participants could perform activities with the DEKA Arm that they could not do with their current prosthesis, such as using keys and locks, preparing food, feeding themselves, using zippers, and brushing and combing hair. The device, however, is not yet commercially available.

As of September 29, 2015, **292** **wounded warriors** from conflicts in Iraq and Afghanistan treated in all U.S. military facilities had sustained a major upper extremity amputation.



Many persons with upper limb amputation abandon or reject their prostheses.

**Transradial (TR) prosthesis users** have the lowest rate of rejection: **6%**.

The rate of rejection by transhumeral (TH) users is **57%**.

This is followed by persons with shoulder disarticulation (SD) at **60%**.

Rates of prosthetic rejection vary for different types of prostheses, with rejection of myoelectric hands, passive hands, and body-powered hooks at **39%**, **53%**, and **50%**, respectively.



*A research participant uses the DEKA Arm to cut fruit.*



*Front to back, left to right: Marcia Selinger, Linda Resnik, Deborah Kelty, Geoff Grinsell, Kate Barnabe, Shana Klinger, and Crystal Davis. Not shown: Frantzy Acluche and Matthew Borgia.*



**NAOMI SAMIMI SADEH, Ph.D.**

is principal investigator in the Behavioral Science Division of the National Center for PTSD and Assistant Professor in the Department of Psychiatry at Boston University School of Medicine. She earned her doctorate in Clinical Psychology at the University of Illinois Urbana Champaign in 2012 and completed a postdoctoral fellowship at the University of California, San Francisco. Dr. Sadeh's research interests are in the development of impulsive and self-destructive behavior, such as suicide and violence, and clarifying how trauma exposure and post-traumatic stress confer risk for these harmful behaviors.

## Linking Genetics and Imaging in PTSD

Study results sometimes serve as a catalyst—prompting researchers to launch new investigations based on recent discoveries. Such was the case for Dr. Naomi Samimi Sadeh, principal investigator in the Behavioral Science Division in Boston, when she began looking at how a gene called *SKA2* might be linked to posttraumatic stress disorder (PTSD) and the risk for suicide.

An earlier study conducted by others linked changes in the *SKA2* gene to suicide in the general population by comparing brains of people who died by suicide versus another way.

“We expanded that by studying the relationship between the *SKA2* gene and brain functioning in living individuals,” says Dr. Sadeh. Relying on participants that came in through TRACTS,<sup>1</sup> her team examined how chemical differences in genes relate to symptoms of PTSD and depression in Veterans who had been exposed to trauma—more specifically, how those chemical signatures in genes related to brain health.

Dr. Sadeh explains that Veterans from TRACTS were assessed for psychiatric symptoms, gave blood, and underwent a brain scan (MRI).

“We studied the relationships between those pieces—the psychiatric symptoms, genetics, and brain imaging—to see whether a

chemical change called *methylation* in the *SKA2* gene predicted brain cortex thickness and symptoms of PTSD and depression. We were surprised to see that the *SKA2* gene predicted reduced thickness in frontal brain regions, which were also related to PTSD symptoms in trauma-exposed veterans.”

This appears to be the first study showing the *SKA2* gene may play a role in the development of PTSD and might explain why it increases the risk for mental health problems such as suicide. Dr. Sadeh says this type of study revealed clues about brain regions vulnerable to traumatic events and may make it possible someday to identify Veterans at high risk for PTSD—perhaps allowing early intervention following deployment.

She adds that researchers continue to investigate relationships between genetics, brain imaging, and psychiatric symptoms.

“In collaboration with Dr. Mark Miller, another researcher here, we are continuing to look at associations between genes, suicide, and PTSD,” Dr. Sadeh says, “as are other investigators studying *SKA2*. It is a potentially important gene for understanding both suicide and PTSD.”

As with all VA studies, this line of research may eventually help people in the general population, such as individuals suffering PTSD from causes other than combat, such as child abuse or sexual assault.

<sup>1</sup> Translational Research Center for TBI [Traumatic Brain Injury] and Stress Disorders

## SUICIDE STATISTICS

From the VA information on suicide risk at [www.publichealth.va.gov/epidemiology/studies/suicide-risk-death-risk-recent-veterans.asp](http://www.publichealth.va.gov/epidemiology/studies/suicide-risk-death-risk-recent-veterans.asp):

**Deployed** Veterans have a **41%** higher suicide rate than the general public.

**Non-deployed** Veterans have a **61%** higher suicide rate than the general public.

Within three years of leaving the service, suicide rates by **deployed** Veterans were **29.7%** and **non-deployed** Veterans **33.1%**

## PTSD STATISTICS

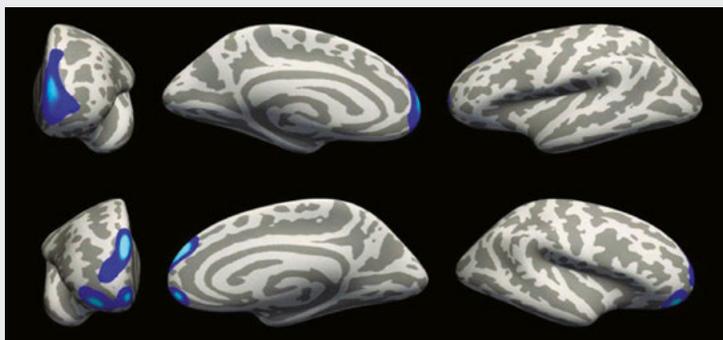
According to the NCPTSD fact sheet, the percent of Veterans with PTSD by era are:

**11-20%** of OEF/OIF      **12%** of Gulf War      **15%** of Vietnam



Source: Epidemiology of PTSD, Gradus, [www.ptsd.va.gov/professional/PTSD-overview/epidemiological-facts-ptsd.asp](http://www.ptsd.va.gov/professional/PTSD-overview/epidemiological-facts-ptsd.asp)

*Brain imaging results from the study. Blue shaded areas show where chemical changes in the SKA2 gene were related to significantly reduced thickness in the cortex—which were located in areas of the brain that help regulate emotion. These regions were associated with greater PTSD severity among trauma-exposed veterans.*



*Left to right: Dr. Mark Miller, Dr. Jasmeet Hayes, Dr. Naomi Sadeh, Dr. Erika Wolf, and Dr. Mark Logue.*



**KRISTIN MATTOCKS Ph.D., M.P.H.**, received her M.P.H. and Ph.D. from Yale University School of Medicine. Among her academic appointments are associate professor of quantitative health sciences, psychiatry, and family medicine, University of Massachusetts Medical School. Her administrative appointments include VISN 1 research lead, Department of Veterans Affairs; and her present positions as associate chief of staff for research and education, VA Central Western Massachusetts Healthcare System. Dr. Mattocks has served on numerous advisory and review committees and in various VA leadership positions. She has conducted VA studies many involving women's care issues and has been published in dozens of manuscripts, book chapters, reports, and white papers. She is also a speaker and presenter at scientific conferences and meetings.

## CDA Program: Important to VISN 1, Important to Veterans

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In addition to providing great medical care, VA leads the nation in researching the biological and social determinants of health, and health care access and utilization among Veterans. To ensure that continues, VISN 1 administers a Career Development Award (CDA) program that provides junior investigators an opportunity to study topics that matter to them—and to Veterans.

Kristin Mattocks, Ph.D., M.P.H., is the VISN 1 research lead and oversees the network's CDA program.

"Since 2010, we have made 30 awards," she says. "We make 4–6 per year, usually to people early in their career. Grants provides salary support for two years of research, enabling recipients to focus strictly on their research."

Because it's a two-year grant, each year supports new recipients and those from the previous year. Total costs are about \$1.6 million for 2016. Dr. Mattocks says research topics run the gamut.

"I'm always impressed with what people study. We fund health services researchers, bench scientists, and other clinical researchers—all with different perspectives but all with ideas for research that helps Veterans." For example, CDA recipients in this year's Annual Research Report are working on issues as varied as the appropriateness of testosterone therapy, visual processing deficits

in schizophrenia patients, and the relationship between PTSD and smoking cessation.

Dr. Mattocks says a CDA program evaluation last spring indicates award recipients are satisfied.

"They felt it was a great opportunity. This year, we plan to launch a mentoring program so they can meet regularly and, to some extent, rely on each other," she explains.

"We want to make sure they succeed after they get their awards."

Dr. Mattocks' biggest role is to convene the committee that reviews proposals.

"We get about 30 applications annually and need investigators with specific expertise to review them. This year, for example, a proposal focused on pharmacy, so we needed a clinical pharmacist." She adds that committee members are senior investigators from across New England who are committed to the CDA program and its recipients.

"These young people have fresh ideas about ways to improve the health and health care of Veterans. We invest in their ideas because they are the future of VA research. It is important to us, and it is important to Veterans."

For more information on the VISN 1 Career Development Award Program, go to [www.newengland.va.gov/research/v1cda](http://www.newengland.va.gov/research/v1cda).

## CDA PROGRAM REVIEW AND SELECTION PROCESS

Prospective applicants are required to submit a Letter of Intent (LOI) that will be used to determine eligibility. The LOI is limited to two pages and should include:

Stage of career

Impact of award on research career and current research effort

Anticipated clinical, teaching, or administrative responsibilities during award period

Anticipated VA and Academic Affiliate career pathway (department, relationship of activity to established activity in department)

Medical Centers involved

Planned research

Proposed mentor(s), including their funding and commitment

Brief statement of eligibility for paid employment at VA (US citizenship)



"Since 2010, we have made **30** awards."

"We make **4-6** per year, usually to people early in their career."

Grants provides salary support for **2 years** of research





**MALCOLM ROGERS, M.D.**, graduated from Yale University in 1965 and Harvard Medical School in 1969. After completing his residency in psychiatry at the Massachusetts Mental Health Center, he served for 35 years at the Brigham and Women's Hospital and on the faculty at Harvard Medical School. He began working in the Mental Health Service at the Portland VA Clinic in 2009 and joined a VA wide research project as the central psychiatrist in 2015, working from VA Maine as his local site. Dr. Rogers serves on the executive committee of the Maine Chapter of the American Psychiatric Association and serves as an advisor and volunteer in Konbit Sante, a Maine based organization that seeks to improve the Haitian health care system in the north of Haiti. He is an assistant professor of psychiatry at Tufts Medical School.

## Maine's Critical Contribution to Veterans

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Maine's ongoing contribution to VISN 1 research helps many Veterans and those who seek care outside the VA system, as well. Such is the case with Cooperative Studies Program (CSP) 590. Malcolm Rogers, M.D., is the central psychiatrist for the study, which looks at lithium's potential to reduce suicidal behavior.

"Lithium is used as a mood stabilizer for bipolar disorder and/or recurrent depression," he explains. "It is probably underutilized because no pharmaceutical company promotes it, despite evidence that it works as well as or better than other mood stabilizers."

According to Dr. Rogers, studies suggest lithium might help reduce suicidal behavior, and CSP 590 will test that hypothesis.

"Our goal is to enroll about 1,900 participants from approximately 30 VA centers around the country over the next 3-4 years," he says. Subjects will continue care at their local VA. For one year, half will receive lithium, and half will receive a placebo. Subjects and providers won't know which is being administered." At the end of a year, subjects on lithium will have the option of continuing it.

Dr. Rogers' role is to fine-tune the protocol, consult with site investigators and coordinators, and monitor the lithium dosing and safety of subjects in the study.

"Since the sites won't know whether their subjects are on lithium or placebo," he adds, "I will monitor lithium levels and side effects. Subjects on placebo will also have lithium levels reported to maintain the blind and prevent bias in the study."

Outcome measures include the time to reoccurrence of any suicidal, self-directed violence, including any suicide attempt (or hospitalization to prevent it) or death from suicide. Researchers also will learn whether subjects continue lithium after the study ends.

"This study may show the protective effect of lithium in reducing suicidal behavior and suicide in general," says Dr. Rogers. Plus, it may renew interest in the drug both within and outside the VA. For our Veterans and their families, reducing suicidal behavior could not be more important."

Susan S. Woods, M.D., M.P.H., VA Maine Healthcare System associate chief of staff for research and informatics, looks forward to adding other new research.

"As one of the first facilities to test patient-facing mobile apps," she says, "we have tremendous opportunity to evaluate technologies expected to boost self-care and improve Veteran health and care satisfaction—all critical as we foster a culture of research."

## ELIGIBLE COHORT IDENTIFICATION

Number of Veterans with a non-fatal suicide attempt between April 1, 2010 and March 31, 2012: **28,934**

Bipolar or depression diagnosis: **27,145**

Veterans with bipolar or depression who survived a suicide attempt: **27,128**

**Eligible for enrollment:**  
**17,656 (65.1%)**

Not bipolar or depression: **1,789 (6.2%)**

Completed suicide or death from other causes within seven days of the index attempt: **17 (0.06%)**

**Exclusions: 9,742 (34.9%)**

>= 6 prior attempts: **1%**

Schizophrenia/CHF/renal failure: **8.4%**

On Lithium in the past year: **6.2%**

On FDA list of drugs that interact with Lithium: **25.4%**

## VA COOPERATIVE STUDIES PROGRAM MISSION STATEMENT

To advance the health and care of Veterans through cooperative research studies that produce innovative and effective solutions to Veteran and national health care problems.

*“Our goal is to enroll about 1,900 participants from approximately 30 VA centers around the country over the next 3-4 years.”*



*Left to right:  
Kathleen Howard,  
Joseph Dixon, John  
Ripollone, Matthew  
Liang, Darion  
Ferdinand, Soe Soe  
Thwin, Cynthia  
Davis, Nicholas  
Best, Natalie  
Morgenstern, and  
Danielle Valley.*



**MARY MARCHETTO, D.N.P., A.P.R.N., VHA C.M.**, has over 30 years of nursing experience in the VA, with additional experience in the private sector. She has worked in VA Medical Centers in Pennsylvania, Michigan, New England, West Virginia, Maryland, and Washington, D.C. As adjunct associate professor at University of Maryland School of Nursing (UMSON), she serves as preceptor and capstone committee member for several UMSON doctoral candidates. Dr. Marchetto's doctoral research focused on nurse manager leadership development tools and the impact of mentoring programs on retention and satisfaction. She is also a certified coach/mentor. In 2011, Dr. Marchetto completed over five years as director of the Nursing Education and Research Center in the VA Maryland Health Care System, transferring to associate director of nursing/clinical affairs/education/research at the Manchester VAMC. In 2015, she was appointed as associate chief of staff of research at Manchester VAMC, with two additional faculty appointments UNH and Boston University.

## Building on Manchester's Rich Research History

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For nearly 30 years, Manchester VA Medical Center (VAMC) maintained a renowned research program focused on post-traumatic stress disorder (PTSD)—producing over 100 publications and helping establish laboratories in the United States and overseas.

Today, Manchester VAMC is boldly redefining itself, broadening its research portfolio, hiring new team members, and collaborating with Northern New England Research Consortium (NNERC) and Massachusetts Veterans Epidemiology Research and Information Center (MAVERIC).

Mary Marchetto, D.N.P., A.P.R.N., VHA-C.M. and associate chief of staff of research at Manchester VAMC, explains.

“NNERC lets us collaborate with sister VA facilities, which allows us to attract research funding and involve traditionally underserved rural Veterans in cutting-edge clinical trials,” she says. “This rebuilding represents a mix of Manchester investigator-initiated grant funding and clinical trial projects.”

She adds that Manchester VAMC's affiliation with the Clinical Trials Network (CTN) is a lifeline.

“The CTN allows us to use research and clinic trials to enable better Veteran care,” says Dr. Marchetto. “We are a small, rural VA in New Hampshire, so we count on our partnerships within

NNERC and MAVERIC.” Manchester is also part of CONFIRM<sup>1</sup> to help determine the best screening method for colorectal cancer, and Dr. Marchetto hopes oncology and cardiology developments continue to gain momentum.

In November 2015, Manchester VA Medical Center kicked off its Million Veteran Program (MVP), a national research effort that will build a database of one million Veterans.

“We used a consortium approach to MVP,” says Dr. Marchetto, “which includes Manchester, White River Junction, Togus, Central Western Massachusetts, and Bedford. We are off to a great start.”

Manchester also has three mental health studies in the data analysis phase and the Home Safety Toolkit Caregivers Support project in partnership with the GRECC<sup>2</sup> at Bedford VAMC.

“Additionally, through an active affiliation agreement with Boston University we'll have medical students here soon,” she says. “We are thrilled to work with esteemed community, medical, and academic partners to serve our Veterans. Our rebirth has taken time, but we are emerging stronger than before.”

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<sup>1</sup> Colonoscopy versus Fecal Immunochemical Testing in Reducing Mortality from Colorectal Cancer.

<sup>2</sup> Geriatric Research Education and Clinical Center



In November 2015, Manchester VA Medical Center kicked off its **Million Veteran Program (MVP)**, a national research effort that will build a database of **one million Veterans**.



*A Joint Service Color Guard presents the colors during the Memorial Day Commemoration Ceremony at the National World War II Memorial in Washington, D.C., May 30, 2011.*

*DOD photo by U.S. Navy Petty Officer 1st Class Chad J. McNeeley*



*Left to right: Donna Cooper, program support assistant - research; Amy St. Cyr, administrative officer - research; Stewart Levenson, M.D., site P.I.; Christy Emond, research coordinator; Mark Connelly, R.Ph., subcommittee research safety – chair and R&D member; Patricia Callahan, R.Ph., R&D committee - chair; Wanda Hunt, PharmD, I.R.B., and R&D member; Mary Marchetto, D.N.P., R.N., associate chief of staff – research and designated education officer; Ritamarie Moscola, M.D., site P.I.; and Mark Gilbertson, Ph.D., P.I., and R&D committee member.*



**MEGAN KELLY, Ph.D.**, received her Ph.D. in Clinical Psychology from the University at Albany, State University of New York, and completed a psychology postdoctoral research fellowship at the Alpert Medical School of Brown University. She is the Bedford site director of the VISN 1 MIRECC. At the Edith Nourse Rogers Memorial Veterans Hospital in Bedford, she is associate director of the Social and Community Reintegration Research Program and the VISN 1 tobacco cessation lead. She is an assistant professor of psychiatry at the University of Massachusetts Medical School and an adjunct assistant professor of psychiatry and human behavior at the Alpert Medical School of Brown University. Dr. Kelly has over 15 years of research and clinical experience focused on the treatment of PTSD, anxiety related disorders, and tobacco addiction.

## Win/Win for Veterans with PTSD Who Smoke

Tobacco use is the leading preventable cause of death for Veterans, and those with mental health disorders like post-traumatic stress disorder (PTSD) are only half as likely to quit smoking as other Veterans are. Megan Kelly, Ph.D., a psychologist and site director of the VISN 1 MIRECC<sup>1</sup> at Bedford, Massachusetts, is helping change that.

“Many Veterans smoke to cope with PTSD symptoms such as emotional issues, depression, and anxiety,” she says, “but Veterans who smoke die about 25 years earlier than those who don’t. We’ve lacked a strategy that tackles smoking and PTSD issues simultaneously.”

Consequently, Dr. Kelly developed a study around a treatment plan called Acceptance and Commitment Therapy for Veterans with PTSD and Tobacco Addiction (ACT-PT), an innovative approach that targets tobacco cravings related to PTSD symptoms and memories of trauma. ACT-PT guides Veterans to replace smoking with alternative coping strategies—mindfulness, acceptance, and healthy living activities like work, physical exercise, and social networking.

“ACT-PT is a unique one-on-one counseling,” she says. “We explain

<sup>1</sup>The Mental Illness Research, Education and Clinical Centers (MIRECC) focuses on Veterans with co-occurring substance use disorders and mental illnesses, as well as related issues. For more information, go to [www.mirecc.va.gov/visn1](http://www.mirecc.va.gov/visn1).

how to use mindfulness exercises instead of smoking to cope with PTSD symptoms and talk about ways to accept symptoms. We also ask them to commit to not smoking at particular times and instead participate in activities consistent with their life goals.” Veterans may also choose a pharmacological component to increase their chance for successfully quitting tobacco.

Early results showed Veterans could not only quit smoking, but also dramatically decrease PTSD symptoms.

“Participants in the first part of the study responded positively,” says Dr. Kelly. “For example, Veterans are reluctant to attend more than one standard tobacco cessation counseling session. But with ACT-PT, 74 percent came to all sessions. That is heartening because the more times they attend, the more likely they are to quit. After our initial study showed promise, we received funding to do a larger study comparing ACT-PT to standard tobacco cessation treatment.”

Dr. Kelly is a Career Development Award (CDA) recipient and adds that it has been extremely important to her career.

“I came to Bedford to be a tobacco cessation psychologist but didn’t have much time to do research. The CDA was a launching pad for me, allowing me to continue as a research psychologist. It has been a wonderful experience.”

## Smoking is the leading preventable cause of death for all Veterans, particularly Veterans with mental health disorders

Veterans with mental health disorders (e.g., PTSD) who smoke die about **25 years earlier** than on average

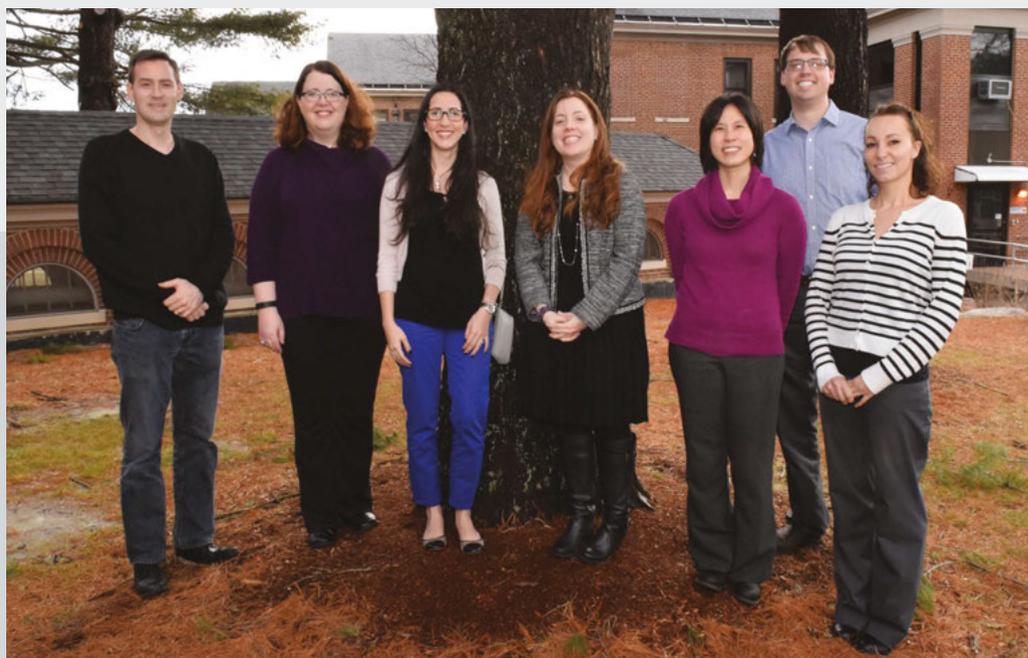
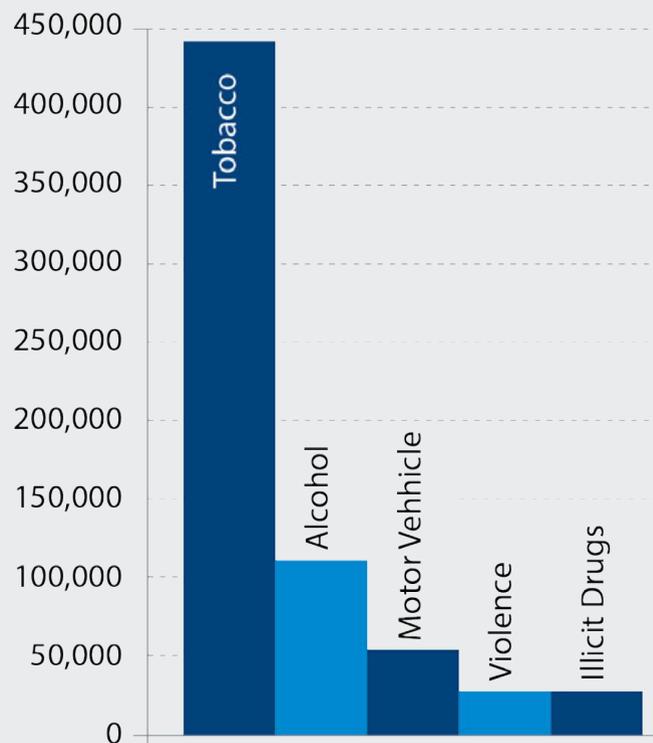
### TOBACCO USE BY VETERANS WITH MENTAL HEALTH DISORDERS

About **20%** of Veterans enrolled in VA have a tobacco use disorder.

About **60%** of these Veterans have mental health disorders.

- They are only **half** as likely to quit as smokers without mental health disorders.
- They have substantially worse psychiatric symptoms, and are more likely to abuse other drugs and alcohol than non-smokers with mental health disorders.

Number of Yearly Deaths in the U.S.



Left to right: Shane Kraus, Ph.D.; Patricia Sweeney, Psy.D.; Viviana Padilla-Martinez, Ph.D.; Megan Kelly, Ph.D.; Shihwe Wang, Ph.D.; Steve Shirk, Ph.D.; and Kendra Pugh, M.A.



**AMY C. JUSTICE, M.D., Ph.D.**, is section chief of general medicine at the VA Connecticut Healthcare System and professor of medicine and public health at Yale University. She is the principal investigator of the VACS, which is funded by the National Institutes of Health. Her research examines the complex and interacting roles of aging, substance use, treatment, adherence, and medical and psychiatric comorbid illness in determining patient relevant outcomes for people aging with and without HIV infection. Dr. Justice has published over 250 manuscripts. She frequently lectures and she advises the National Cancer Institute as a member of the ad hoc Subcommittee on HIV and AIDS Malignancy, the HIV and Aging Working Group, NIH Office of AIDS Research and the White House Office of National AIDS Policy. In 2012, Dr. Justice was recognized as one of 100 Most Influential Professors of Public Health in the United States.

## VACS: Pioneering HIV Research Efforts

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VA is the nation's largest provider of care to those with human immunodeficiency virus (HIV). More than half of Veterans with HIV are over age 50, and many suffer from other medical and psychiatric diseases, too. The Veterans Aging Cohort Study (VACS)<sup>1</sup> has made significant advances in diagnosing and treating those patients, thanks in part to Principal Investigator Amy Justice, M.D., Ph.D.

"We look beyond one diagnosis and try to understand the health experience for patients given all of their conditions," she explains.

The VACS relies on a virtual cohort of approximately 50,000 HIV infected Veterans who receive VA care. A sub-study includes additional participants at eight sites. Comparing the data of infected individuals against similar Veterans (e.g., age, race, gender, etc.) who do not have the virus helps researchers understand how aging with HIV is similar to—and different than—aging without it.

"We offer excellent care for HIV, but we must also prioritize screening and treatment options for patients' comorbid conditions," says Dr. Justice.

The VACS team's contributions are noteworthy.

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<sup>1</sup> The VACS mission is to build and disseminate the evidence needed to optimize health care for people aging with HIV infection.

"We demonstrated that HIV drives certain other conditions, including heart disease, liver disease, and many forms of cancer," Dr. Justice says. "People with the virus who get good treatment are at less risk for these other diseases than people who do not get treated, but both groups are at greater risk than those without HIV. That is one of the biggest contributions our study has made to international literature."

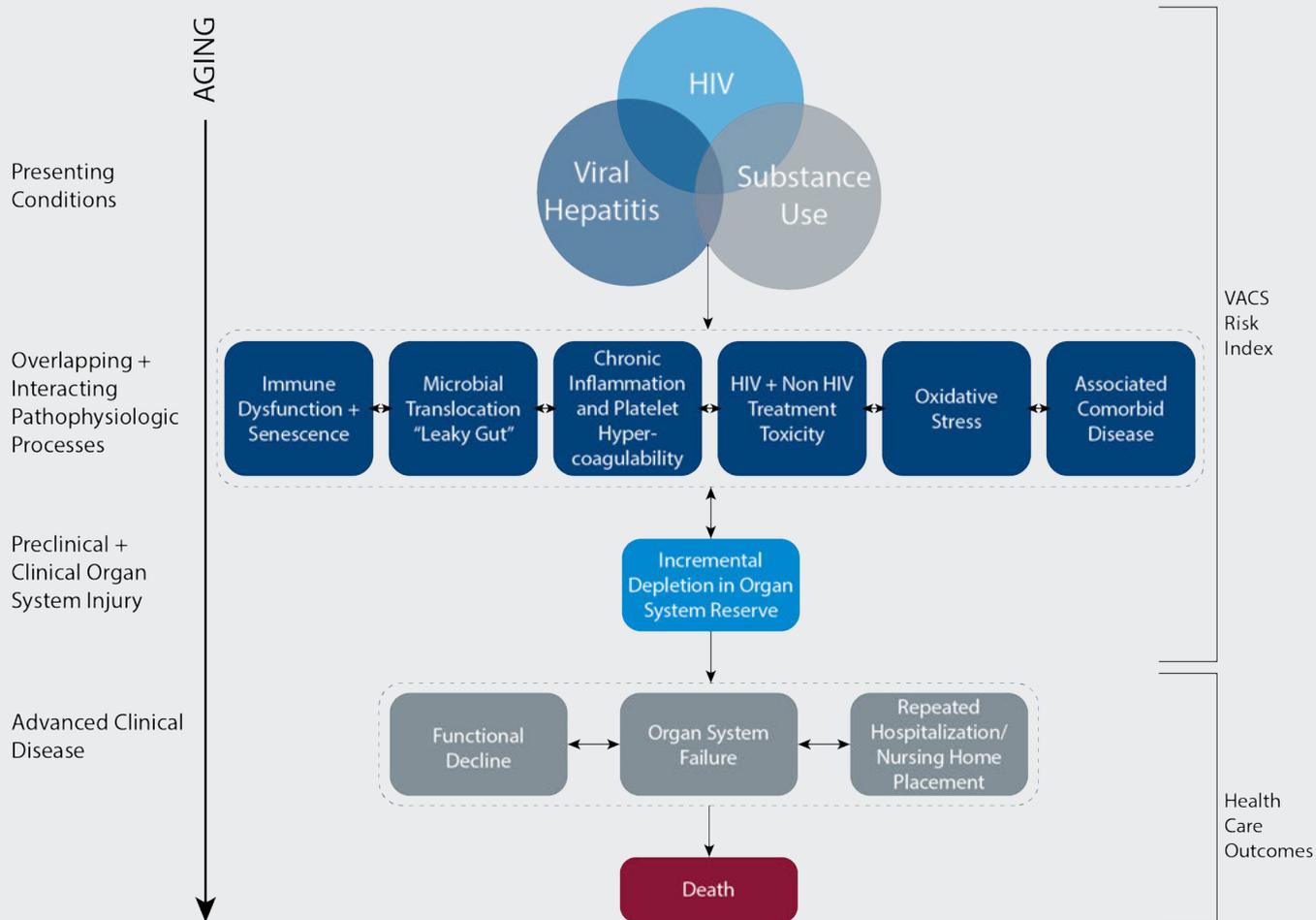
Dr. Justice is understandably proud of the education, training, and career development support the VACS group offers researchers and methodologists.

"Ours is the largest cohort study of people with HIV in North America and a great example of what the VA system brings to research," she continues. "With our electronic records, we can describe patterns of health and health care in a way few other groups can."

That luxury did not exist for Dr. Justice 20 years ago. Instead, she and the VACS team blazed a trail for other researchers.

"I was the first investigator to collect electronic data from multiple sites for a study like this," she says, "and the team was one of the first to share data outside the VA." VACS investigators and collaborators now span North America and Europe, with a Coordinating Center at the West Haven VA Medical Center.

# PATHOPHYSIOLOGY OF AGING WITH HIV



Justice AC. HIV and Aging: Time for a New Paradigm. *Curr HIV/AIDS Rep.* 2010 May;7(2):69-76

Veterans Aging Cohort Study Team





**GUNEET K. JASUJA, Ph.D., M.P.H.**, is a research health scientist at CHOIR and a research assistant professor at the Boston University School of Public Health. Her previous research activities have provided her with a broad exposure to behavioral health, community based interventional research, and quantitative analyses. Dr. Jasuja did her post doctoral work at the Framingham Heart Study where she evaluated the epidemiology of aging related phenotypes, including physical function, mental behaviors, and metabolic disorders with a focus on endogenous sex hormones in males. At CHOIR, she applies these skills to health services research. Her goal is to become a successful and productive investigator in the area of medication prescribing, specifically with regard to testosterone therapy and more generally to the issue of reducing variation, overuse, and understanding appropriateness in other areas of care.

## Increased Testosterone Use Prompts Research

New testosterone dispensing within the VA rose 77.6 percent from fiscal years 2009 to 2012, costing approximately \$22.5 million in 2012. Yet only a small proportion of Veterans underwent appropriate testing, and some received this therapy despite contraindications.

These findings alarmed Guneet K. Jasuja, Ph.D., M.P.H., who joined the VA in 2011.

“Part of my post-doctoral research involved examining the epidemiological association of low testosterone with adverse outcomes in aging men,” she says. “After discussions with my CHOIR<sup>1</sup> mentor, I decided to examine testosterone prescribing in the VA from a health services perspective.”

Dr. Jasuja’s focus on this topic garnered a Career Development Award (CDA) that gave her protected time to “do good science, publish manuscripts, and work on applying for the national CDA,” which was recently funded. Hers is the first assessment of VA testosterone prescribing practices.

“Maybe because advertising directly targets patients,” she explains, “patient demands propel this prescribing. But inappropriate

prescribing may cause long-term adverse effects, such as increased cardiovascular events and prostate cancer. This study provided a snapshot: inappropriate prescribing occurred and guidelines were not always followed.”

Dr. Jasuja says the five-year national CDA, beginning in January 2016, builds on her VISN 1 CDA and focuses on improving testosterone use in the VA.

“I want to identify quantitative predictors of testosterone prescribing,” she says. I will interview providers, patients, and site leaders to understand perceptions about testosterone therapy using qualitative methods and to understand what is happening at each level. Based on findings, I hope to develop a multi-focused intervention to optimize VA testosterone use.”

At the patient-level, Dr. Jasuja wants patients to know the risks of testosterone therapy. At the provider level, she wants VA providers to follow clinical guidelines before issuing new prescriptions (e.g., mandated baseline and diagnostic evaluations) and plan for subsequent monitoring. At the site level, she wants uniform application of clinical guidelines.

“Through this award,” she says, “I can work toward improving testosterone prescribing in the VA, which will benefit Veterans, providers, and the entire VA.”

<sup>1</sup>The Center for Healthcare Organization and Implementation Research (CHOIR) mission is to improve Veterans’ health outcomes by developing, studying, and applying evidence-based practices that will be widely implemented and sustained.

In keeping with the increasing use of testosterone therapy over time in the United States, new testosterone dispensing in the VA **increased from**

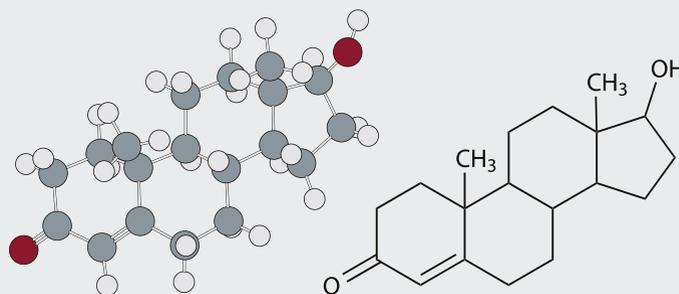
**20,437** in FY09 to

**36,394** in FY12, a

**77.6%** increase,

while the number of male VA patients increased by

**5.3%** during the same period.



Of the **111,631** men who newly initiated testosterone therapy during FY09–FY12, a **total of**

**42.7%**

**of these patients were of age 60–69 years, and**

**78.4%** were white.

Consistent with other studies of the VA population,

**21** patients had a relatively high frequency of comorbid physical health conditions (such as diabetes) and mental health conditions (such as depression).

Only a small fraction (**3.1%**) of men prescribed testosterone in the VA, the nation's largest integrated health care system, underwent an appropriate diagnostic evaluation and ascertainment of contraindications for testosterone therapy before receiving testosterone.

**One in 6** had not undergone any testosterone measurement at all. In addition,

**52%** of Medicare-enrolled patients who did not have any testosterone testing within VA also had not had any testing outside VA.



*Dr. Jasuja's primary mentor,  
Adam J. Rose, M.D. M.Sc. F.A.C.P.*

*Guneet Jasuja and  
Joel Reisman*



**TORAL SURTI, M.D., Ph.D.,** earned a doctorate in biophysics and her medical degree at the University of California San Francisco. She completed residency training in psychiatry at Yale University and did a post doctoral fellowship there to determine whether visual processing deficits in schizophrenia can improve with training. She subsequently received a NARSAD Young Investigator Award and the American Psychiatric Association/Kempf Fund Award for her work. She also completed a Special Fellowship in schizophrenia at the VA. Dr. Surti's research interests include understanding and treating the cognitive problems associated with neuropsychiatric illness, especially schizophrenia. Her career goal is to translate her background in neurobiology and psychiatry into a research program that harnesses neuroplasticity to treat cognitive impairments of neuropsychiatric illness.

## Improving Visual Memory for Schizophrenia Patients

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The symptoms of schizophrenia can be very disabling both for Veterans and for civilians, usually due to problems in cognitive function—specifically, the ability to process and recall information. Fortunately, VISN 1 has a talented researcher working to improve the lives of those who struggle with such issues.

Toral Surti, M.D., Ph.D., is a psychiatrist in the VA National Telemental Health Center, where she consults with Veterans with psychosis. But through her Career Development Award (CDA), she is also conducting fascinating research to study whether reversing visual processing deficits in schizophrenia can improve other cognitive functions.

“We aren't sure exactly why these visual processing deficits occur,” she says. “Since we don't have medication to treat this and other cognitive problems that drive the disability in schizophrenia, I wanted to see if we could improve and develop other types of treatments, such as cognitive training, for patients' symptoms.”

Part of her earlier research efforts involved 10 computer-based training sessions in which participants had to identify an image (called a target stimulus) that they saw very briefly on a computer screen—sometimes just milliseconds. Dr. Surti explains that

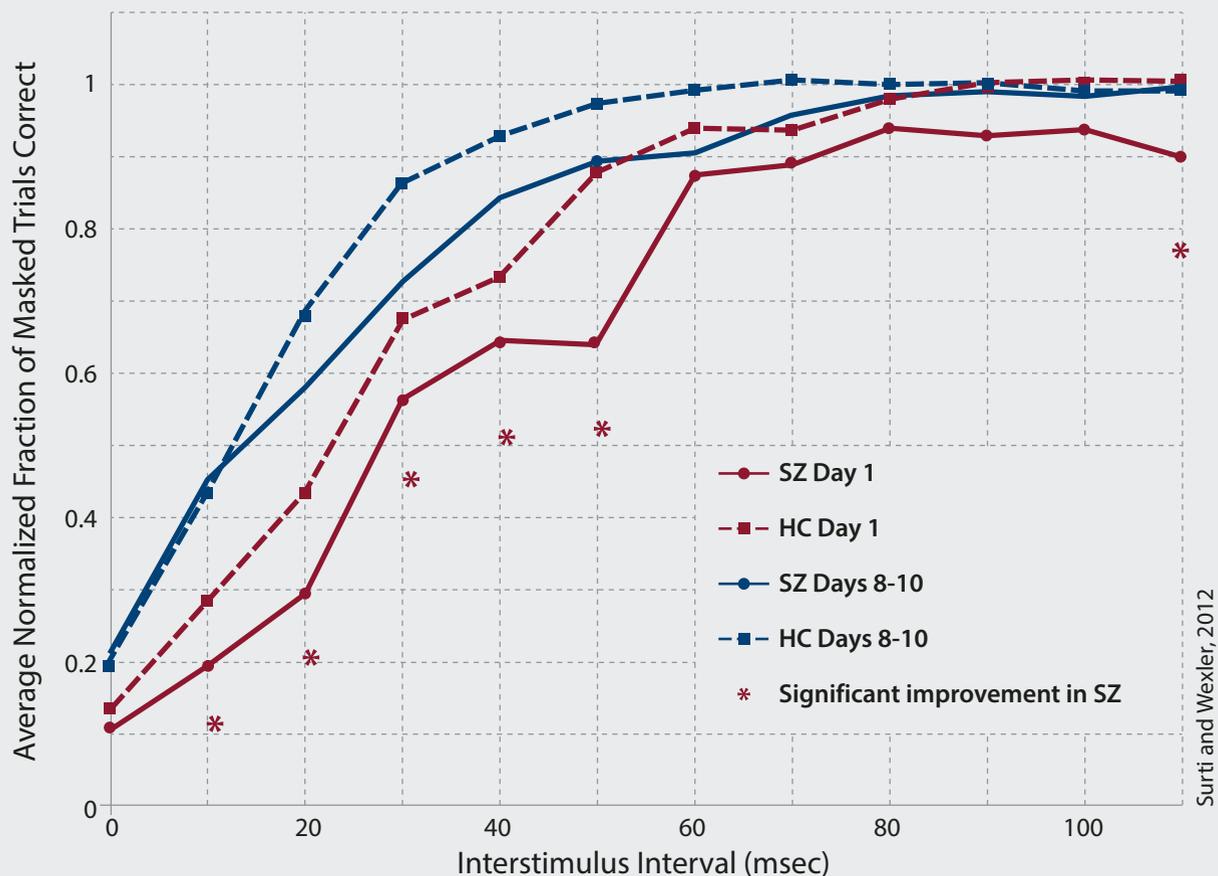
right after the first image, a second image (called a mask) appeared.

“The second image can mask the perception of the first one,” she says. “It interferes with the ability to identify the first image, for everyone. That phenomenon is called visual backward masking, or VBM. However, for people with schizophrenia, there is even more difficulty with identifying the masked image.”

Dr. Surti adds that patients who struggle with this task are more likely to have other difficulties, including recognizing facial expressions. But VBM training appears to offer hope to Veterans with schizophrenia; it might improve their visual memory for up to six months and perhaps longer. She is currently conducting a randomized control trial of a more sophisticated version of visual processing training. Her CDA, which runs through July 2016, may well help researchers understand learning in schizophrenia.

“The CDA gives me protected time to do research,” Dr. Surti concludes. “It also allowed me time to develop a research program, which is extremely important at this early stage in my career. Many VA researchers and investigators also serve as mentors, both formally and informally, which has been an added benefit of the CDA.”

## VBM PERFORMANCE IMPROVES WITH PRACTICE IN SCHIZOPHRENIA



*VBM training appears to offer hope to Veterans with schizophrenia; it might improve their visual memory for up to six months and perhaps longer.*





**DANIEL O'ROURKE, M.D.**, received his undergraduate at Siena College and attended medical school at SUNY Upstate Medical University in Syracuse. His internal medicine residency was at University of Pittsburgh, and his cardiology fellowship was at Dartmouth Hitchcock Medical Center. After joining the staff at the White River Junction VA in 1996, Dr. O'Rourke assumed the role of chief of cardiology in 2004. He is a frequent contributor to journal articles and abstracts, as well as an award winning presenter, lecturer, and instructor. His major research interests include outcomes research using data bases to investigate disease of the aortic valve and aorta.

## Growing Pains at White River Junction

Research projects are causing growing pains at White River Junction VA Medical Center (VAMC), much to the delight of Dr. Daniel O'Rourke, chief of cardiology since 2004.

"Clinical research is the lifeblood of advancing science and medical care for Veterans and the population at large," he says, adding he is excited that some of that research is taking place in northern New England.

"Leadership decided a few years ago to bring the latest science and treatment to New England Veterans," explains Dr. O'Rourke. "That included developing the VISN 1 Cardiology Consortium, a unique initiative to expand clinical cardiology research, advance patient care, and support quality improvement across the network. We enthusiastically built the infrastructure to make it happen."

Currently, four current cardiovascular clinical trials are underway at White River Junction VAMC.

"The ISCHEMIA trial is for patients with moderate to a severe ischemia," says Dr. O'Rourke, "which means an area of the heart is not getting enough blood flow. The study compares optimal medical therapy alone to optimal medical therapy plus coronary revascularization."

According to the American Heart Association, one in three

Americans have some form of cardiovascular disease, so the FOURIER study provides an important look at reducing LDL cholesterol. "Statin drugs have been the standard care for patients with elevated cholesterol who had a heart attack," Dr. O'Rourke explains. "This study compares statin therapy alone to a cholesterol reducing agent plus statin therapy."

Heart failure can occur in patients whose heart pumping function is normal or near normal. Despite significant advancements to treat patients who have heart failure with reduced heart function, few advancements for heart failure patients with normal heart function have occurred in the last 25 years. The PARAGON study examines a new drug for this group of patients.

"The COMMANDER-HF study is just getting started," he continues. "It will assess a target-specific oral anticoagulant in heart failure patients with reduced ejection fraction and significant coronary artery disease." Dr. O'Rourke is excited to offer these new therapies presently available in research trials only.

"We have a dedicated team committed to providing Veterans with cutting-edge research and improving cardiovascular care in our region," concludes Dr. O'Rourke. "We are now positioned to offer patients state-of-the-art comprehensive cardiovascular care that may benefit them and future patients as well."

Cardiovascular disease (heart disease, high blood pressure and stroke) are the number one killer of men and women in the United States. Several risk factors have demonstrated strong relationships with the development of cardiovascular disease including: tobacco use, high blood pressure, high cholesterol, diabetes and obesity. Ischemic heart disease is a frequent indication for hospitalization and heart failure is the number one reason for hospital discharge in the VA healthcare system.



## Lifestyle choices are important:

Eat healthy foods

Limit salt intake

Stop smoking

Exercise every day

Lose weight

Reduce alcohol to 1-2 drinks per day



## PREVALENCE OF CARDIAC RISK FACTORS AMONG VETERANS

**20%** currently smoke.

**37%** have elevated blood pressure.

**30%** have high cholesterol.

**25%** have diabetes.

**80%** are considered obese.

The VA continues to be a leader in the study of heart disease evaluating existing treatments for cardiovascular disease and developing new ones. The WRJ VA is presently involved in three clinical trials involving cholesterol management (FOURIER), heart failure (PARAGON) and coronary artery disease (ISCHEMIA). Over the next year, several more clinical trials involving novel treatments will be offered to Veterans with acute heart failure, heart disease and diabetes, the use of chelation therapy, low versus high dose influenza vaccine in patients with heart failure and cardiac rehabilitation.



*White River Junction Research Team, from left to right: Dr. Robert Palac, Dr. Daniel O'Rourke, Sarah Beaudry, R.N., Anthony Gemignani, M.D., and Scott Friedman, M.D.*

