VA

Research Quarterly Update

Office of Research and Development

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An overview of key accomplishments and initiatives in VA research

Fall 2018 • THIS ISSUE: Ensuring High-Quality Care

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Helping Veterans live life to its fullest

One of VA's most important research priorities is helping translate its research into real-world treatments and care for Veterans, so that their quality of life is the best that it can be. There are many instances where VA research has led to new treatments and improvements in care not only for Veterans, but also for patients in the private sector.

One example is the nationwide implementation of a safety initiative to reduce catheter-related bladder infections. The bladder bundle is a set of protocols that grew out of a Michigan-based patient safety initiative to reduce the incidence of catheter-associated urinary tract infections. CAUTIs are one of the most-common hospital-acquired infections. They frequently affect patients who live in nursing homes, as well.

VA Ann Arbor Healthcare System researchers Drs. Sarah Krein and Sanjay Saint worked together with colleagues to identify the barriers in hospitals and nursing homes to adopting safe practices to reduce CAUTIs. Through a partnership with the Agency for Healthcare Research and Quality, Krein and Saint implemented the bladder bundle in more than 1,000 hospital units throughout the U.S. Through this effort, CAUTI infection rates fell by 22 percent. Saint and Krein's work on promoting the safe use of urinary catheters has significantly changed practice across VA and in the private sector.

As we work hard to unravel the science behind debilitating conditions that affect our Veterans, it is also important to continue examining the best ways to deliver care, and to help ensure that VA care is the best that it can be. In this issue, we highlight several innovative research projects that aim to do just that.

Dr. Ted Skolarus is a urologist and research scientist at the VA Ann Arbor Healthcare System in Michigan. He is using his VA Career Development Award to examine the quality of prostate cancer survivorship care provided to Veterans across the VA health care system. Each year, 12,000 Veterans are treated in the VA for prostate cancer. Nearly 100 percent of those men who are treated for localized prostate cancer will survive at least five years. That means quality survivorship care is vitally important to these men and their families. Skolarus' research has identified ways to improve the delivery of VA survivorship care, and to facilitate better communication between

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cancer specialists and the primary care doctors who will provide follow-up care to these Veterans.

We also interviewed Dr. Hal Wortzel, who is co-director of the Suicide Risk Management Consultation Program at the VA Rocky Mountain Mental Illness Research and Education Clinical Center in Denver. The staff of the consultation program are available to any clinician who is working with Veterans who may be at risk of dying by suicide. He says their mantra is: Never worry alone. "If clinicians are particularly concerned about an individual or Veteran that they are seeing," says Wortzel, "we are out there to help develop ideas that could afford some benefit for that individual's care."

Dr. Wortzel's research is focused on suicide prevention in the Veteran population, especially as it relates to Veterans who experience posttraumatic stress disorder or traumatic brain injury. He says that Veterans must manage not only the everyday stressors that people experience, but also those that are unique to military service, such as exposure to combat or chronic pain caused by injury during military service.

In this issue of *VARQU,* we talk about many more quality-of-care issues that affect Veterans—the types of services that homeless Veterans use most; coaching healthy behaviors in Veterans with heart disease; and monitoring blood pressure at home. We hope you will find this information useful whether you are a Veteran, the family member of one, a researcher, or a clinician.

Erica J. Sprey
Managing Editor, *VA Research Quarterly Update*

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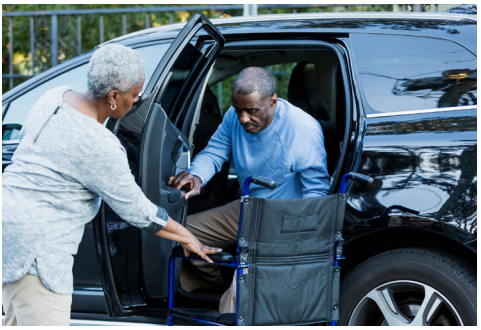

The new Elizabeth Dole Center of Excellence for Veteran and Caregiver Research will allow VA to expand its research on Veteran caregivers, and the challenges they and their families face. *(Photo for illustrative purposes only. @iStock/kali9)*

VA launches new research center of excellence for Veteran caregivers

In September 2018, VA announced that it will fund a new center of excellence for caregiver research. The center is named for Senator Elizabeth Dole—honoring the work she has done to support the 5.5 million military and Veteran caregivers in the U.S.

The Elizabeth Dole Center of Excellence for Veteran and Caregiver Research will be managed by the VA Health Services Research and Development service. Caregiver research will be spread out over four VA health care facilities in Texas, Florida, Utah, and California. Dr. Luci Leykum at the South Texas Veterans Health Care System is the lead investigator. She will be joined by VA investigators Drs. Stuti Dang, Mary Jo Pugh, and Ranak Trivedi.

The new center will allow VA to expand its research on Veteran caregivers, and the challenges they and their families face. The new center has several goals: to involve Veteran caretakers in the design of new models of care; to use Veteran-driven metrics for program evaluations; to use data science to help match services to caregivers; and to apply implementation science to employ best caregiver practices in the home and community.

A report by the RAND Corporation estimates that 1.1 million people are caring for post-9/11 Veterans. The profile of post-9/11 caregivers differs substantially from that of civilian caregivers. Post-9/11 caregivers are more apt to be spouses (33 vs. 16 percent) or parents (25 vs. 10 percent) than civilian caregivers. As a group, they are much younger (37 percent are under the age of 30) and are more likely to be caring for a Veteran who has a traumatic brain injury, mobility-limiting disability, or a mental health/substance use disorder.

"We know how important caregivers are to the Veteran community now, and we know they're going to be even more important 10 and 20 years out," Steve Schwab, executive director of the Elizabeth Dole Foundation, told *Military Times*.

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Donated human stool for use in fecal transplants. *(Photo by Mary Beatty-Brooks)*

New clinical trial looks at home use of fecal transplants to prevent *C. difficile*

VA researchers at the Minneapolis VA Health Care System are beginning a new clinical trial to assess the effectiveness of home use of fecal microbiota therapy (FMT) to prevent recurrence of *Clostridium difficile* (*C. difficile*) infections. The study is called Microbiota or Placebo after Antimicrobial Therapy for Recurrent *C. difficile* at Home (MATCH).

MATCH (CSP #2004) will assess the effectiveness of FMT delivered via an oral capsule, rather than by colonoscopy. While fecal transplants, given after antibiotic therapy, have shown promise in the treatment of recurrent *C. difficile* infection in smaller studies, there is a lack of larger clinical trials to establish efficacy. Currently, the FDA requires an investigational new drug application for any research using FMT.

The study, sponsored by the VA Cooperative Studies Program, opened for recruitment in November 2018. Eligibility requirements for Veterans include having had one or more episodes of recurrent *C. difficile* infection; resolution or improvement of symptoms from the most recent *C. difficile* infection; and enrollment within 2 to 14 days after completion of antibiotic therapy, or 30 days after onset of *C. difficile*. Eligible Veterans may live anywhere in the United States, and will be enrolled at their place of residence. All follow-up will be conducted by study coordinators via telephone.

While *C. difficile* is a common hospital-acquired infection, more than 90 percent of patients recover after a standard course of antibiotic therapy. However, recurrence is common. After the first episode of infection, recurrence rates are between 15–30 percent. That increases to 40–50 percent after the second and subsequent episodes of *C. difficile*.

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Dr. Hal Wortzel is a forensic neuropsychiatrist at the VA Rocky Mountain Mental Illness Research and Education Clinical Center in Denver. *(Photo by Shawn Fury)*

Seeking new ways to alert physicians to Veteran suicide risk

Dr. Hal Wortzel is a forensic neuropsychiatrist at the VA Rocky Mountain Mental Illness Research and Education Clinical Center (MIRECC) in Denver. He serves as director of neuropsychiatric consultation services and codirector of the VA Suicide Risk Management Consultation Program. Dr. Wortzel is also an associate professor of psychiatry, neurology, and physical medicine and rehabilitation at the University of Colorado.

His research is focused on suicide prevention in the Veteran population, especially as it relates to Veterans who experience posttraumatic stress disorder (PTSD) and/or traumatic brain injury (TBI).

VARQU spoke with Wortzel about his research into suicide prevention, and more specifically, his thoughts on using a suicide-specific diagnosis code in Veterans' medical records.

The overall suicide rate for Veterans is 5 percent greater than for non-Veterans, according to the latest VA National Suicide Data Report. Why are Veterans at a greater risk for suicide?

Unfortunately, it's the case that suicide rates and recent numbers aren't terribly encouraging when we talk about the population at large. This is a growing problem across our community—for Veterans and non-Veterans. Why are the numbers looking a little bit worse for Veterans? It starts with whatever is driving the increase in the general population.

There are a lot of factors driving suicide risk in the general population—things like depression, life stressors, and substances of abuse. And of course, all those things also impact our Veterans. Then, we must superimpose Veteran-specific aspects that might increase the risk above what everyone else is facing.

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For many of our Veterans, that involves circumstances directly stemming from their military service—exposure to combat, PTSD, various injuries that might result in TBI, or chronic pain. Also, the added psycho-social stressors that come with military service can increase suicide risk. Most of us don't have to contend with deploying for service and being gone for months, if not years, and coming back to kids we haven't gotten a chance to spend a lot of time with. Or coming home to a significant other who has had to take on a different role in our absence. To better understand all the unique aspects that increase Veteran suicide risk, we must superimpose them on top of the stressors that people in the general population deal with.

In an article published in *Psychiatric Practice,* researchers proposed that physicians should use a suicide-specific diagnosis code in Veterans' medical records. Can you explain what a diagnosis code is?

In the world of psychiatry and mental health, we have the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*. The diagnostic manual outlines the criteria for all the diagnoses we use: whether it's major depression, PTSD, bipolar disorder, or schizophrenia.

The DSM has evolved over many years now in the spirit of making sure that we are all using these terms in the same way. If I say someone is depressed, then all other mental health professionals will know what I mean. And that wasn't always the case. If you go back long enough, people would use these terms in their own idiosyncratic fashion, and it wasn't always clear what they meant. The DSM has evolved so that we have a shared language that will facilitate communication, and, by virtue of better communication, enhance patient care.

The idea of the suicide-specific diagnosis doesn't necessarily begin with these authors. If you look at the DSM5, which is the most current version of the diagnostic manual, there is a proposed—not ready for prime time—research diagnosis for suicide. In the DSM though, suicide risk is really based on historical behaviors, rather than anticipating future risk or behaviors.

Why would including a suicide-specific diagnosis in the medical record be helpful?

If there was a perfect diagnosis that would help us determine future risk—who would or would not attempt suicide—if that was predictive in terms

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of future suicide behaviors, that of course would be helpful in identifying who is at risk to help us support and bolster care for those individuals. I think that is the justification for these proposed diagnoses: It is going to call-out risk more effectively in the medical record and thereby help ensure that appropriate treatment plans are in place.

In an editorial written in response to that article, you and your colleagues wrote that there could be some unintended consequences to putting a suicide-specific diagnosis in the medical record. Why is that?

Going back to where we started this conversation, suicide rates are alarming for all populations. As a society, as medical providers, and mental health professionals, we are still unable to predict who will or will not go on to die by suicide. It is a unique challenge to come up with a diagnosis and concrete criteria for a behavior that we don't really know how to effectively predict.

The literature out there suggests that when we try to predict, we end up with a lot of false positives. In order words, most people we identify as being at high, chronic risk for suicide, probably won't go on to die by suicide. And there are unfortunately many people who are not identified as being at risk, who die by suicide. So, the problem here is prediction, and we can't do it well. It is exceedingly difficult to create criteria that then facilitate that process in a way that potentially justifies achieving the status of a diagnosis.

You also mention that requiring a suicide-specific diagnosis in the medical record could put providers in a difficult position. Can you explain?

One of the arguments in favor of these diagnoses was that the addition of this type of diagnosis in the medical record would be helpful to providers by reflecting their consideration of suicide risk. And presumably it would offer protection against claims that they were negligent in considering suicide, or accepting that risk.

And although that is probably not untrue, from the medical-legal perspective, our concern was more the opposite end of things—when that diagnosis did not appear in records. So, when you start talking about the ways that clinicians can be held liable for malpractice, one of the leading causes is diagnostic error: The idea that if you misdiagnose someone or don't offer a diagnosis when it is applicable, could lead to a finding of negligence.

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Right now, because there isn't a suicide-specific diagnosis, you can't be held negligent for not offering a diagnosis. Once we create and routinely start using that diagnosis, it potentially becomes a problem if, and when, that diagnosis doesn't feature in an individual's record. It creates the risk, that retrospectively, legal advocates will make the argument, "Well, obviously someone who died by suicide warranted a suicide-specific diagnosis." And, by virtue of that not being there, you are guilty of diagnostic error and negligence as a consequence.

But we know that, unfortunately, roughly half of individuals who die by suicide haven't been recognized as being at risk. And that doesn't mean that all the providers those people saw were negligent. There are a number of reasons why people don't present as being at risk—they may not share their risk, and sometimes, it's the case that people take active steps to hide their risk, for any number of reasons, such as stigma, or concern about consequences—for example, what will this mean for my job?

Is dying by suicide an impulsive act?

Although it may appear as though dying by suicide is an impulsive act, this is rarely the case. What is true is that thoughts of suicide can come and go. Sometimes life events trigger a sudden spike in suicidal desire, which can then lead to individuals deciding to act on those ideas or impulses. In other words, if someone saw their doctor on Tuesday and didn't have any thoughts of suicide or intent to harm themselves, and they died by suicide two days later, that doesn't mean they weren't being truthful when they saw the provider. It may mean that life happened and something triggered an acute crisis that no one could have predicted or anticipated.

Now, there are people for whom suicide is a more contemplative act that evolves over days, weeks, months, and even years. And that's a different circumstance. But for people who become acutely suicidal because of unpredictable life circumstances, this kind of diagnostic issue could become dangerous for clinicians who potentially face legal outcomes, if these diagnoses were to exist.

In your editorial, you mentioned using red flags in the electronic medical record. Can you tell me what those are?

There is a lot of suicide-specific programming within the VA that is fairly unique. One element of that is the use of risk flags that populate the electronic

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medical record. There are a number of flags that can exist in the medical record, but there is one specifically that is supposed to communicate to providers perceived high risk for suicide.

The advantage is, if for example, a Veteran was on the road and went to an emergency room where no one knew him or her, the existence of that flag would indicate to new providers that we should be checking in about this person. We should be assessing the Veteran for suicide risk, thoughts about suicide, and obviously, identifying any changes or spikes in risk and entering that in the record.

You've written a lot about the importance of creating suicide risk assessments and patient safety plans. Can you explain their significance?

The exchange of articles with Joiner, et. al., was intended as a healthy debate about these issues to create an important dialogue. So, both of those articles appeared in a *Law and Psychiatry* column that I edit. Even though we have differing perspectives on these issues, I think we are all in agreement that these are important dialogues to have—and that risk assessment remains an important thing to have. I say this because some of this has come up in the context of a body of literature that highlighted clinicians' fairly poor ability to predict suicide. With some even going so far to say, "If we are so bad at predicting suicide, why are we spending all this time doing risk assessments?"

Our answer to that question is, risk assessment matters not because we are good predictors, but because if we do risk assessment in a patient-centered way that is thoughtfully integrated with the rest of the mental health assessment, it can contribute to building therapeutic relationships. It can identify things that are not only important to suicide risk management, but for achieving mental health and life goals more generally.

For example, one of the items in a safety plan involves identifying things that you can do to distract yourself when you are in crisis. Or, identifying people you can reach out to help distract you when you are not doing well. Of course, these things are important for navigating a suicide crisis, but they also turn out to be really important for living happy and fulfilled lives.

Suicide aside, there are many individuals struggling with emotions who would benefit from tools that are not only helpful in terms of suicide risk, but in achieving their treatment goals and life goals more generally. If you

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are having a bad day, it can be important to have people you can reach out to cheer you up. Or, have the ability to do things that make you feel better. With the focus on suicide we sometimes tend to talk about these things in that context—in isolation. What I am trying to say is that we need to bring that dialogue back into the mental health world, more broadly. And make sure that we are not carving out suicide and its risk assessment and management from all the other things that are part of a comprehensive mental health treatment plan.

Impact of research on physician satisfaction

Conclusion: "Expanding opportunities for physician involvement with research may lead to more positive work experiences, which could potentially reduce turnover and improve system performance."

Based on 373 survey responses from inpatient physicians at 36 VA medical centers. "Factors associated with internal medicine physician job attitudes in the Veterans Health Administration," *BMC Health Services Research*, April 5, 2018. Infographic by VA Research Communications, April 2018. Photo for illustrative purposes only. © iStock/Tinpixels

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Dr. Ted Skolarus is a urologist and research scientist at the VA Ann Arbor Health Care System in Michigan. *(Photo by Brian Hayes)*

Caring for prostate cancer survivors

Dr. Ted Skolarus is a urologic oncologist—a physician who treats cancer of the urinary tract and male reproductive system. He serves as section chief of urology at VA Ann Arbor Health Care System in Michigan, and is an associate professor of urology at the University of Michigan. He is also a research scientist at the VA Health Services Research & Development Center for Clinical Management Research (CCMR) in Ann Arbor.

His research is focused on survivorship care for men who have undergone treatment for prostate cancer. While survivors need to be monitored by their providers for cancer recurrence, there are also a number of quality-of-life issues, like urinary incontinence and sexual health, that should be assessed by the medical team. In many cases, there are things that can be done to help survivors enjoy a better quality of life.

VARQU spoke with Skolarus about his Career Development Award to help improve the quality of survivorship care for Veterans who have been treated for prostate cancer. He attributed the success of this research program and future efforts to the mentorship and holistic support made available through the award.

Welcome Dr. Skolarus. How prevalent is prostate cancer in the U.S.?

The classic incidence is about 1 in 6 men will be diagnosed with prostate cancer at some point in their lifetime. Given that the VA health care system is over 80 percent male, there is a substantial number of Veterans who are diagnosed with prostate cancer. The annual incidence of prostate cancer impacts approximately 12,000 Veterans in the VA each year.

There have been changes in the screening recommendations from various organizations, as to the value and effectiveness of early detection of prostate cancer through prostate-specific antigen (PSA) screening. But in general, most approaches rely on shared decision making—between providers and patients—regarding whether men wish to be screened for prostate cancer.

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There are some high-risk groups—including men who were exposed to Agent Orange, African American men, men with a strong family history of prostate cancer, or early onset prostate cancer in a relative—that may be at greater risk of aggressive prostate cancer, that should more strongly consider screening.

What is the survival rate for prostate cancer?

The five-year survival rate for localized prostate cancer is nearly 100 percent. On the other hand, prostate cancer is one of the leading causes of male cancer-related deaths—there are nearly 30,000 deaths expected in 2018. There are over 3 million men alive with a diagnosis of prostate cancer in the United States. Given the patient population and access to health care and screening in the VHA, thousands of these prostate cancer survivors are cared for in the system.

What are the most common side effects of treatment for prostate cancer?

I tend to think of side effects as impacting biological and psycho-social aspects of men and their partners' lives. When we think of biological side effects of prostate cancer treatment, we think of four primary areas or domains. One is urinary health: The prostate sits at the base of the bladder. The urethra goes right through the prostate and allows the urine to exit the body. When you treat the prostate either through surgical removal or by radiation therapy, there are urinary side effects. Those can include urinary leakage, and other urine symptoms like urgency or frequency. Those can be long term, or appear years later after treatment.

The other side effect of prostate cancer treatment that impacts a lot of men and their partners is related to sexual health. The nerves that go to the penis for erectile function are draped right onto the prostate gland. So, any treatment that we do locally can impact sexual function—that is a common side effect. There are biological ways to help with erectile dysfunction, and there are also psycho-social treatments to help men and their partners deal with those side effects.

For radiation therapy there are also side effects that relate to the bowels. Because the rectum and the bowels are near the prostate, radiation therapy can primarily result in short term diarrhea, blood in the stool, and other bowel side effects, with some men having late and long-term problems.

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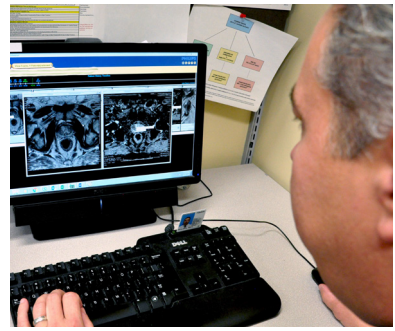
Another treatment that impacts men more globally is hormone therapy, or androgen deprivation therapy (ADT), which can be used along with radiation therapy to treat localized prostate cancer, or by itself to treat cancer that has spread. Side effects associated with castration, or lowering the man's testosterone levels to a minimal level, can include hot flashes, fatigue, weight gain, breast enlargement, and decreased libido. It can also include broader side effects such as cardiovascular disease, osteoporosis, and diabetes.



Cancer specialist Dr. Ted Skolarus reviews an MRI of the prostate gland. *(Photo by Brian Hayes)*

Can you explain what your Career Development Award involved?

The first aspect of the award was to look at things that would be consistent with high quality prostate cancer survivorship care. There's a paucity of quality measures, so that was, in some respect, the reason for this work—to define what quality prostate cancer survivorship care might look like.

As we looked at a couple different markers of survivorship care quality, we found a lot of variation within the VA health care system. One of the first things that we did was look at men who were getting ADT, and if they were getting a recommended bone density testing to screen for baseline osteoporosis. We know that this is recommended for most men who will be starting hormone therapy.

We found that up to 1 in 5 men were getting this screening study. This was fairly consistent with findings from Medicare studies. But we also found that the more likely you were to get a bone density test, the more likely you were to be diagnosed with osteoporosis. And, if you were diagnosed with osteoporosis, you were more likely to get vitamin D, calcium, and treatment for osteoporosis, in an attempt to prevent fracture given increased risks with ADT. So, this part of the study pointed out areas for improvement in bone health for men who were getting hormone therapy.

Why is bone density testing important for a man who will undergo hormone therapy for prostate cancer?

Hormone therapy can worsen or cause osteoporosis. We know that osteoporosis can be associated with fractures. There are studies that show

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that the more exposure men have to castration with hormone therapy, not only are they more likely to have osteoporosis, they are more likely to have a fracture. One way to potentially decrease the impact of hormone therapy on bone health is to screen and treat men who have osteoporosis at baseline.

In general, men are less likely to undergo osteoporosis screening, although they may suffer from low vitamin D levels, smoking, and other risk factors for osteoporosis. These are things that are prevalent among Veterans.

What types of follow-up care are important for prostate cancer survivors? You mentioned bone density scanning; what else do physicians look for?

We recommend—as part of the American Cancer Society prostate cancer survivorship guidelines—measuring and addressing men's quality of life, with respect to urinary, sexual, bowel, and overall health. That is important to do given the side effects of treatment, yet there remains a lack of systematic organizational approaches for assessment. Following PSA as a cancer surveillance approach is also important.

Another part of the work we did as part of this Career Development Award was to look at prostate cancer surveillance rates with PSA. We found very high levels of annual surveillance among Veterans in the VA health care system. However, we also found something that is an area of possible improvement.

We discovered that when the PSA level approaches 4—which is typically the level associated with screening and early detection of prostate cancer—men were more likely to get annual surveillance, even though they had already been treated for prostate cancer. So, in other words, the levels we use for prostate cancer surveillance after treatment, such as less than 0.2 after surgery, were not necessarily being adhered to system-wide.

I think engaging and using clear communication about survivorship care plans with primary care providers who end up caring for prostate cancer survivors can really make a difference. Good communication is especially helpful in getting men back to their specialists if there is concern for a recurrence of their prostate cancer or unmet needs with respect to side effects.

You said that you felt there was a benefit to men who were treated in the VA health care system. How is that different from getting care outside in the community?

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I think that one incredible resource within the VA is its integrated health record, or CPRS. Several years ago, I did a study looking at fragmentation in prostate cancer survivorship care. I found that the more fragmented your care was between different providers, the more likely you were to have care that is more expensive and of lower value—for instance, repetitive PSA testing.

It would be very unusual for the specialist or primary care provider not to see what the last PSA test was in a patient treated in the VA health care system. So that integrated record and laboratory data can really help the providers understand where survivorship care issues are on the radar.

For example, is urinary incontinence being addressed, or what is the status of sexual health among prostate cancer survivors? What medications are they taking? The national electronic systems in place at the VA present a unique opportunity to understand the entire context of the patient's health care within the context of other conditions that they may be dealing with through their primary care providers and other specialists.

You also developed an intervention for prostate cancer survivors that used automated telephone calls with advice on symptom management. Can you explain?

As part of the Career Development Award, I was able to have multiple survivorship-related projects dovetail with each other. One of those was an HSR&D-supported randomized trial of over 500 men with prostate cancer across four sites in the VA: St. Louis, Cleveland, Ann Arbor, and Pittsburgh. Along with Dr. Sarah Hawley who led the project, we wanted to understand if we could use an automated telephone system to not only assess men's side effects within those important domains, but also to give tailored newsletters and feedback on how they can help themselves self-manage those side effects. We also wanted to teach men when to reach out to their doctors to help them with side effects that might be overlooked during routine care.

That work was presented at the American Society of Clinical Oncology's annual meeting, and highlighted during one of its poster discussion sessions, this year. The manuscript is under peer-review.

What we found was while there were small effects on men's overall quality of life, when they did want to focus on a given area like urinary or sexual health, we saw improvements in that area. That demonstrates the potential

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impact of not only measuring patient-reported outcomes for prostate cancer across the entire VA system, but also giving Veteran prostate cancer survivors tailored self-management strategies to improve those areas that are affecting their health. This degree of support is not available in any other system. We are excited about its potential for national impact as Veteran engagement was excellent throughout the study.

From the article "Acupuncture and Whole Health in the Veterans Administration," *Medical Acupuncture,* online Oct. 15, 2018.
Infographic by VA Research Communications, October 2018. Photo: © iStock/AndreyPopov.

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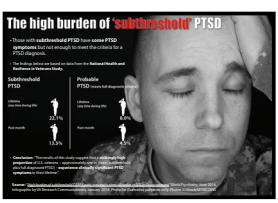

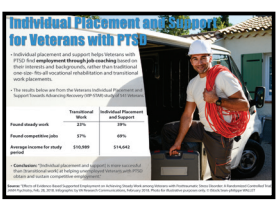

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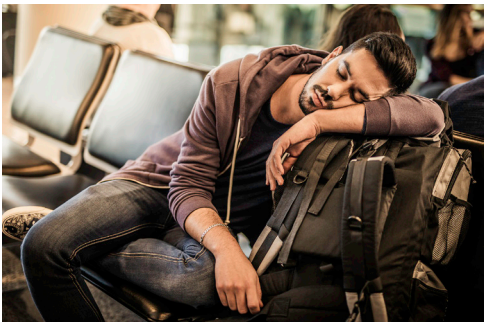

Veterans who have certain psychological traits may be better positioned to weather the effects of poor sleep, say VA researchers. *(Photo for illustrative purposes only. @iStock/vm)*

Resilience may protect against the effects of poor sleep

A study of more than 1,100 Veterans found that the traits of "adaptability" and "self-efficacy"—both indicators of psychological resilience—buffered the negative effects of poor sleep.

In a study published in *Military Psychology,* Dr. Susan Nicole Hastings and colleagues assessed sleep and resiliency in a group of Iraq and Afghanistan Veterans. The team used data from the Study of Post-Deployment Mental Health. Hastings, who is an investigator at the Durham VA Medical Center in North Carolina, and her team wanted to examine the relationship between poor sleep and psychological distress in otherwise healthy Veterans.

Using a variety of questionnaires that measured sleep quality, resilience, anxiety, combat exposure, and traumatic life events, the researchers ran analyses to examine the degree to which poor sleep contributes to distress. They found that measures of resilience, like "the ability to adapt to change" and "the tendency to bounce back after hardship," had a protective effect against distress resulting from poor sleep.

Studies show that there is an association between poor sleep and mental health disorders like posttraumatic stress disorder. Yet, lack of sleep can also worsen psychological distress in healthy individuals. Problems with sleep are common in Veterans. One study found that more than two-thirds of Iraq and Afghanistan Veterans who returned from deployment without a mental health disorder complained of insomnia.

Veterans can experience unique circumstances after returning home from deployment. Stressors that might affect adequate sleep include worries over finances, securing employment, and renegotiating family roles, say the researchers. Veterans are also more likely to return home with physical injuries that can contribute to chronic stress and difficulty sleeping.

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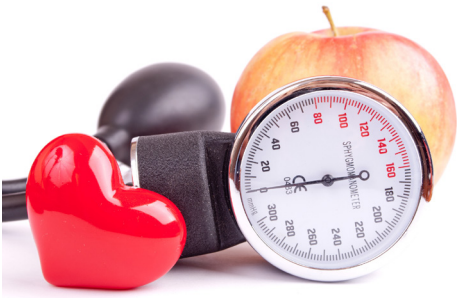

Completing an online health assessment was more effective at reducing Veterans' risk for heart disease when combined with telephone coaching, according to a VA study. *(Photo @iStock/Hirurg)*

Coaching healthy behaviors in Veterans at risk for heart disease

In a study published in the *Journal of General Internal Medicine,* VA investigators examined the effectiveness of two interventions to help patients reduce their risk for heart disease. They found that an online health risk assessment was more effective at motivating Veterans to address modifiable risk factors like smoking, when combined with telephone health coaching.

Dr. Eugene Z. Oddone at the Durham VA Medical Center and colleagues enrolled 417 Veterans in a randomized clinical trial at three VA medical centers. Study participants had at least one modifiable risk factor for heart disease—a BMI greater than 30, less than 150 minutes of moderate physical activity per week, or currently being a smoker.

After enrollment, Veterans were asked to complete an online health risk assessment (HRA) available through MyHealtheVet—the VA's online health portal. When complete, the HRA provided patients with an estimated chronological age based on their health status, and a list of recommendations to help address health risks. Following completion of the HRA, study participants were randomized into two groups. One group received only the HRA, and the other received the HRA plus two telephone sessions with a health coach.

The coaches used motivational interviewing techniques to help Veterans identify and set goals to address health risk, and to enroll in a targeted prevention program. They also worked to educate Veterans on how much cardiovascular risks could be reduced by improving diet, stopping smoking, increasing physical activity, and losing weight.

At six months, Veterans who received both the HRA and health coaching were more likely to have enrolled in a prevention program (51 vs. 29 percent), had greater program participation (40 vs. 23 percent), and greater improvement in patient activation measures.

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VA researchers are studying how Veterans access and use homeless assistance services like rapid rehousing programs. *(Photo for illustrative purposes only. @iStock/ljubaphoto)*

Veteran profiles for VA homeless program use

VA researchers analyzed the records of over 61,000 homeless Veterans to find out which homeless assistance programs they used, how often they accessed services, and for what length of time. The team identified five different Veteran usage profiles that, they say, can inform future research into VA homeless assistance programs.

In a research brief published by the VA National Center on Homelessness Among Veterans, Drs. Jack Tsai and Thomas Byrne analyzed data on homeless Veterans collected during the period 2015–2017. The investigators culled data from the Homeless Operations Management and Evaluation System, the Supportive Services for Veteran Families (SSVF) program, and VA electronic medical records—available through the VA Corporate Data Warehouse.

Their intent was to evaluate how homeless Veterans in the study population were using VA homeless assistance programs. For the study, the researchers examined patterns of homeless program usage—breaking down the two-year study period into 24 discrete blocks of time. They assessed Veteran participation in the following VA homeless programs:

- the Contract Residential or Safe Haven program
- the Domiciliary Care for Homeless Veterans program
- the Compensated Work Therapy/Transitional-Residence program
- the Grant and Per Diem (GPD) program
- the Health Care for Homeless Veterans Case Management program
- the HUD-VA Supportive Housing (HUD-VASH) program
- the SSVF Prevention
- the SSVF Rapid Re-housing program

The majority—or 59 percent—of Veterans fell within the Brief Program profile. These Veterans typically made a one-time use of VA homeless programs, and their stays were relatively brief.

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The Permanent Supported Housing Plus profile accounted for 21.4 percent of the study participants. Veterans in this group made long-term use of the HUD-VASH program, and often made use of a second VA housing program during the same month.

The Heavy Multiple Program Use profile accounted for only 3.4 percent of the cohort. Veterans in this group made heavy use of multiple VA homeless programs over the entire two years of the study.

The Transitional Housing Use profile made up 6.4 percent of study participants. Veterans in this group made heavy use of the GPD program.

The Rapid Rehousing Program Use profile accounted for 9.7 percent of study participants. This group was made up of Veterans who primarily used the SSVF rapid re-housing program for an extended period of time.

Following a shift in U.S. policy in 2009, VA created the SSVF program—one that emphasized homelessness prevention and rapid rehousing efforts. VA now operates a continuum of homeless assistance programs, recognizing that homeless Veterans have diverse needs that may include more than just temporary housing assistance.

In 2018, HUD reported that the number of homeless Veterans had decreased by 5.4 percent during the past year. Since 2010, that represents nearly a 50 percent decline in homeless Veterans. Officials said in a VA press release that they attribute that decline, in large part, to "the effectiveness of the HUD-VASH program, which combines permanent HUD rental assistance with case management and clinical services provided by the VA."

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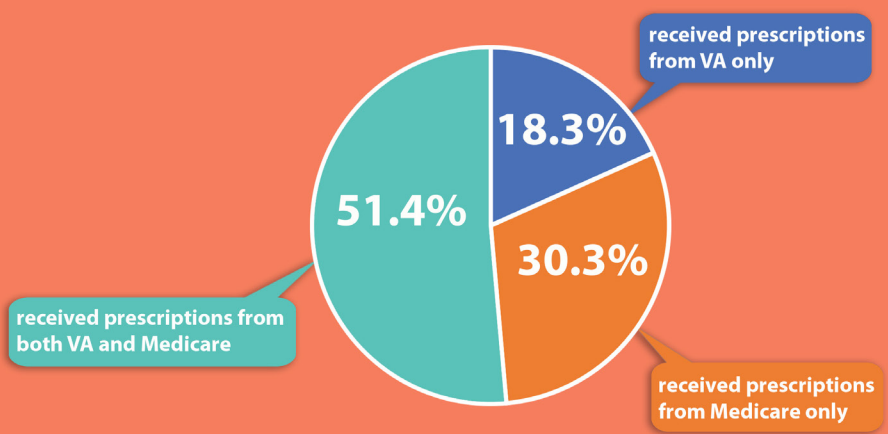
Risks of dual pharmacy use

Researchers wanted to find out if Veterans who use both VA and Medicare drug benefits were at higher risk of receiving overlapping presciptions for opioids (for pain) and benzodiazapenes (to ease anxiety)—a potentially dangerous drug combination.



	VA only	Medicare only	Dual use of VA and Medicare
Proportions of Veterans with potentially risky overlap:	17.3%	16.5%	**23.1%**
Proportions of Veterans with potentially risky *high-dose* overlap:	2.3%	2.9%	**4.7%**

Conclusion: "Among a national cohort of veterans dually enrolled in VA and Medicare, receiving prescriptions from both sources was associated with greater risk for receiving potentially unsafe overlapping prescriptions for opioids and benzodiazepines."

Study based on analysis of records of 368,891 Veterans enrolled in VA and Medicare Part D who filled at least two opioid prescriptions in 2013. From "Receipt of Overlapping Opioid and Benzodiazepine Prescriptions Among Veterans Dually Enrolled in Medicare Part D and the Department of Veterans Affairs: A Cross-sectional Study," *Annals of Internal Medicine,* online Oct. 9, 2018. Infographic by VA Research Communications, October 2018. Photo: © iStock/Cathal Stadler.

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Dr. Laura Petersen

Why aren't we using home blood pressure monitoring?

In an editorial published in *JAMA,* Dr. Laura A. Petersen and colleagues advise that home blood pressure monitoring (HBPM) is superior to taking a single reading in the medical office. Home monitoring gives providers better control of patient treatment, say the researchers, and makes for more accurate reporting on physician quality measures. Petersen is director for the VA Center for Innovations in Quality Effectiveness and Safety (iQUEST) in Houston.

Primary care providers typically take a single blood pressure reading during a routine office visit. While that measurement is easily documented in the electronic medical record and is readily available for later comparison, it may not paint an accurate picture of blood pressure control. Petersen and colleagues point to evidence-based guidelines that recommend using HBPM to confirm a diagnosis of hypertension and guide treatment. They also note that 10 to 50 percent of patients who have a high blood pressure reading in the office will have normal blood pressure readings at home.

Most physicians are aware of the benefits of HBPM, the team writes, yet quality reporting guidelines, like the Healthcare Effectiveness Data and Information Set (HEDIS), do not currently accept readings from a HBPM. They suggest that health systems and physicians can help change that standard by adopting a hybrid approach that uses HBPM where available, and office blood pressure readings for other patients. Using HBPM can reduce misleading estimates of hypertension control, improve patient satisfaction, and allow physicians to more easily adjust treatment between widely spaced office visits.

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Dr. Saket Girotra

Are lay rescuers adequately prepared for CPR?

In an editorial published in *Circulation: Cardiovascular Quality and Outcomes,* Drs. Kimberly Dukes and Saket Girotra caution that an overly simplified approach to cardiopulmonary resuscitation (CPR) training for lay rescuers may not meet their emotional needs adequately and could discourage them from attempting CPR in a crisis.

Current thinking recommends simplifying the approach to CPR training for the lay rescuer. For example, in 2012, the British Heart Foundation teamed with actor Vinnie Jones to create a video that demonstrates hands-only CPR done to the rhythm of the Bee Gee's song "Staying Alive." The intent was to make CPR accessible to everyone. But this approach, say the researchers, may not provide lay rescuers with the necessary resources to accomplish effective CPR.

The researchers, both with the Iowa City VA Medical Center, point out that bystander CPR can double survival rates for heart attacks that occur out of the hospital—yet currently, fewer than 4 in 10 CPR rescues involve bystanders in the U.S. They suggest that better training could address needs like emotional distress after conducting CPR; uncertainty about when to start CPR; and fear of hurting the patient.

Dukes and Girotra suggest that CPR training that involves real-life simulations could address both the highly technical requirements of CPR and the emotionally stressful components. However, delivering simulation training for lay rescuers would not be logistically practical, say the researchers—instead, they recommend further studies to identify better ways to teach and deliver CPR training.

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Dr. Mitesh Patel

Bedrest in the hospital is toxic

Studies have shown that too much bedrest can lead to functional decline in hospitalized patients, especially those over the age of 65. In an editorial published in the *Annals of Internal Medicine,* Drs. Mitesh Patel and S. Ryan Greysen propose the best way to maintain patient agility is for the hospitalist to conduct a mobility assessment for each patient who is hospitalized. Once a baseline is established, they say, the physician should then develop a mobility plan for the patient that covers both inpatient and discharge goals.

Patel, who is on staff at the Corporal Michael J. Crescenz VA Medical Center in Philadelphia, and his coauthor propose that there may be a threshold number of steps that can prevent functional decline in hospitalized patients. Several studies have suggested that 1,000 steps per day—roughly half a mile—can stave off loss of functional independence after a hospitalization. Yet, most patients rarely leave their beds when in the hospital. In one study that made use of a motion monitor, hospitalized patients left their beds an average of only 45 minutes per day.

To combat that disconnect, say Patel and his coauthor, a hospital mobility plan can outline daily patient goals for both walking and time spent out of the bed. For example, the Hospital of the University of Pennsylvania uses a five-level mobility guide to help patients understand their activity goals—ranging from most time spent in bed to 90 percent of time awake spent walking or sitting in a chair. The authors recommend recruiting not only nurses but also patient care assistants and volunteers to help patients with walking.

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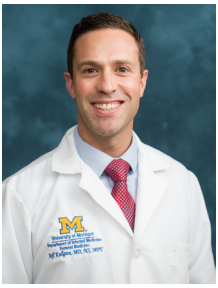

Dr. Jeffrey Kullgren

Helping consumers make good health care choices

Increasing financial pressures in health care have brought about a wealth of reports on the quality and cost of health care services. Ideally, providing quality reports can help patients choose high-value providers—those who offer high-quality care at a reasonable price. Yet, consumers are faced with the difficult task of sorting through vast amounts of quality data to find the best deal, according to Dr. Jeffrey Kullgren, a health services researcher at the VA Ann Arbor Healthcare System in Michigan.

In an editorial published in *Health Services Research,* Kullgren discusses the challenges inherent in presenting consumers with accurate yet straightforward information on choosing cost-effective health care. Studies show that many consumers rely on recommendations from family or friends, or refer to their insurance plan's list of providers when choosing a physician. Even if they do consult quality reports, often the reports are targeted to physicians, not consumers, and are incomplete.

Rather than restrict consumer choices to a small network of high-value providers, Kullgren proposes enhancing existing reports or tools so that they better meet consumer needs. One way to achieve that goal is to adopt market-research techniques used by online retail companies. Building a customizable interface that makes use of customer preferences and past choices could make the health care decision process easier for patients.

Another tactic is the use of financial incentives, similar to those used by health insurance companies. Kullgren says that tying lower co-pays to providers with higher levels of cost efficiency could incent patients to choose a high-value physician. Finally, he says there is an opportunity for the health care industry to teach consumers how to use quality and price information to help them make the best health care choices.

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Dr. Stephen Waxman

VA neuroscientist receives Axelrod Prize

Dr. Stephen Waxman received the 2018 Julius Axelrod Prize from the Society of Neuroscience. He was honored for his research describing the roles that ion channels play in diseases of the brain and spinal cord. The Axelrod Prize is given in recognition of exceptional achievement in neuropharmacology or related fields.

Waxman is founder and director of the Center for Neuroscience and Regeneration Research—jointly located at the VA Connecticut Healthcare System and Yale University in West Haven, Connecticut. He is also the Bridget M. Flaherty Professor of Neurology at Yale.

Scientists at the center seek to understand what is happening on a molecular level in conditions like spinal cord injury, multiple sclerosis, neuropathic pain, and inherited erythromelalgia, or "man on fire syndrome." The team is also working to develop new drugs or repurpose existing drugs to treat diseases of the nervous system.

"We have a lot more work to do," Waxman said in a recent interview with The *Lancet,* "but I believe that we will at some point have more effective pain medications, without CNS [central nervous system] side effects or the potential for addiction."

Ion channels are specialized proteins within cells that allow ions—molecules with an electrical charge—to pass across cell membranes. Ion channels direct the transmission of electrical signals along nerve cells, controlling body functions like movement and the sense of touch.

Waxman identified the role that ion channels play in causing pain. As part of an international coalition, he and his team pinpointed sodium channel mutations as causes of peripheral neuropathy—nerve pain in the hands or feet. Injured nerve cells can impair sodium channel function, which causes neurons to become hyperexcitable and more prone to sensing pain.

His lab also discovered that there is increased expression of sodium channels in diseases like multiple sclerosis, in which nerve cells lose their protective coating, or myelin. His lab is working to understand the molecular

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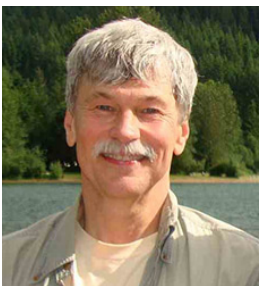
mechanisms that underlie recovery of electrical conduction in nerves cells that are demyelinated.

Waxman has authored over 600 scientific studies and edited 9 books, and he is the author of several neuroanatomy texts. His most recent book is "Chasing Men on Fire: The Story of the Search for a Pain Gene."

Waxman has received many awards during his distinguished career, including the William S. Middleton and Paul B. Magnuson awards—given by VA for outstanding achievements in biomedical/bio-behavioral research and rehabilitation research, respectively.



Dr. William A. Banks

Dr. William A. Banks receives VA's Middleton Award

Dr. William A. Banks, associate chief of staff for research and development at VA Puget Sound Health Care System in Washington, has received the 2018 William S. Middleton Award. It is the highest honor conferred by the VA Biomedical Laboratory Research and Development (BLR&D) Service.

The award recognizes Bank's long history of contributions to VA research, particularly his groundbreaking work in the emerging field of neuroimmunology—which studies interactions between the nervous and immune systems. He is considered a leading expert on the blood-brain barrier and how it functions within the body.

Banks' laboratory studies how the brain communicates with the rest of the body through the transfer of molecules across the blood-brain barrier. The barrier consists of different cells within the blood vessels that limit the passage of certain molecules from the blood into the brain. His work has also helped scientists comprehend how disruptions in the homeostasis mechanisms within the body—such as blood sugar level maintenance—can lead to diseases in the nervous system.

His important discoveries include:

- discovering the mechanism of cytokine transport across the blood-brain barrier and its effect on thinking in conditions like Alzheimer's disease.

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- demonstrating the ability of gastrointestinal hormones to cross the blood-brain barrier and the impact of obesity on the transport of the hormone leptin.
- showing that decreased transport of amyloid-beta peptide leads to its accumulation in the brain and promotes development of Alzheimer's disease.
- discovering that excess glucose metabolism in diabetes creates oxidative stress that results in the death of cells called pericytes and disrupts the blood-brain barrier.
- understanding that HIV-1, as free virus, can cross the blood-brain barrier and infect the brain.

Banks is also a professor in the division of gerontology and geriatric medicine at the University of Washington, Seattle, and editor in chief of *Current Pharmaceutical Design*. He is the author of over 360 research papers in well-known journals such as *Diabetes* and *Brain Research*.

In addition to fostering the health of Veterans and patients worldwide, his work has helped spur ongoing development of new drug therapies for the treatment of nervous system disorders. For example, Bank's lab has studied several peptide analogs that have increased therapeutic action on conditions like Alzheimer's disease.

The William S. Middleton Award is awarded annually to senior VA biomedical research scientists in recognition of outstanding scientific achievements in the areas of biomedical and bio-behavioral research. It was established in 1960 to honor Dr. William S. Middleton, distinguished educator, physician-scientist, and VA chief medical director from 1955 to 1963.

McKee and Wyss-Coray Named to *Time*'s 50 Most-Influential List

VA research scientists Dr. Ann McKee and Dr. Tony Wyss-Coray were named to *Time* magazine's "The Healthcare 50"—a list of the 50 most-influential people in health care in 2018. The list honors scientists and innovators who are transforming the way we approach and deliver health care in the United States.

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Dr. Ann McKee

Dr. Ann McKee is chief of neuropathology at the VA Boston Healthcare System and director of the VA-BU-CLF Brain Bank, a joint endeavor between VA, Boston University, and the Concussion Legacy Foundation. She is a pioneer in identifying and understanding the repercussions of chronic traumatic encephalopathy (CTE)—a degenerative condition caused by repeated traumatic blows to the head. CTE has been associated with repetitive, mild traumatic brain injury in military service members. Mild TBI is the most common brain injury affecting members of the military, and is referred to as the signature injury of the wars in Iraq and Afghanistan.

CTE has been more frequently documented in professional athletes who play contact sports. McKee's research has called widespread attention to the alarming prevalence of CTE in professional football players. After former New England Patriots tight end Aaron Hernandez died by suicide at the age of 27, McKee discovered CTE in his brain—the most severe case of CTE she had seen in someone his age. Her research has also demonstrated that adults are not the only ones at risk of brain injury from mild repetitive trauma. McKee has found evidence that children 6 to 12 years old who play tackle football are also at risk for brain injury.

McKee was selected by Time for her work to "keep athletes safe."

Dr. Tony Wyss-Coray

Dr. Tony Wyss-Coray is a VA senior research scientist and associate director of the Center for Tissue Regeneration, Repair and Restoration at Palo Alto, California. He is also a professor of neurology and neurological sciences at Stanford University. His laboratory studies the effects of aging and immune responses on the brain and the role that Alzheimer's disease plays in brain degeneration and memory loss.

Wyss-Coray is best-known for his groundbreaking research into the use of blood taken from young mice to combat the effects of aging and memory loss in older mice. The process originally involved surgically connecting young mice to older mice—so that they would share blood circulation. Now, his team injects plasma from donor mice into older mice. He hopes, eventually, to perfect the technique for use in humans, with an eye toward treating Alzheimer's disease.

Wyss-Coray was selected by Time for his work in "using blood as medicine."

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Four VA scientists elected to National Academy of Medicine

Four senior VA researchers have been elected to the 2018 class of The National Academy of Medicine. The inductees are Dr. Ann McKee, VA Boston Healthcare System; Dr. Albert Siu, James J. Peters VA Medical Center in New York; Dr. Lucila Ohno-Machado, VA San Diego Healthcare System; and Dr. Rachel Werner, Corporal Michael J. Crescenz VA Medical Center in Philadelphia.

Election to the academy is a high honor for health and medical professionals. Members are selected for their contributions to the medical sciences, health care, and public health. This year, the academy inducted 75 members from the U.S. and 10 international members.

Dr. Ann McKee

Dr. Ann McKee is chief of neuropathology at the VA Boston Healthcare System and director of the VA-BU-CLF Brain Bank, a joint endeavor between VA, Boston University, and the Concussion Legacy Foundation. She is also a professor of neurology and pathology at Boston University School of Medicine. She has devoted her research to understanding traumatic brain injury, Alzheimer's disease, aging, and vascular neuropathology. McKee is best known for her groundbreaking research on chronic traumatic encephalopathy (CTE)—a degenerative condition in the brain that results from repeated, traumatic blows to the head. CTE can currently be diagnosed only after death, and has been found in the brains of professional contact athletes and members of the military who have sustained blast injuries. McKee was cited by the academy for expanding medicine's understanding of the molecular basis of CTE and for promoting a public dialogue about sports-related health risks.

Dr. Albert Siu

Dr. Albert Siu directs the Geriatric Research, Education, and Clinical Center at the James J. Peters VA Medical Center in New York, and has served as past chair of the U.S. Preventive Services Task Force. He is also the Ellen and Howard C. Katz Chairman's chair emeritus and professor of the Brookdale Department of Geriatrics and Palliative Medicine at the Icahn School of Medicine at Mount Sinai. The department is one of the largest academic geriatrics

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programs in the United States. Siu's research is focused on improving the quality and delivery of health care for an aging population. Areas of special focus at the Bronx/New York Harbor GRECC include improving palliative care; preventing functional disability; discovering drugs for Alzheimer's disease; improving transitions of care; and improving care for rural older Veterans. The academy cited Sui for his seminal contributions to evidence-based practice in health services research, and for programs that link geriatrics and palliative care.

Dr. Lucila Ohno-Machado *(Photo ©UC San Diego Health)*

Dr. Lucila Ohno-Machado is a research scientist at the VA San Diego Healthcare System and chair of biomedical informatics at UC San Diego Health in California. She is also associate dean for informatics and technology at the UC San Diego School of Medicine. Ohno-Machado is considered a pioneer in bioinformatics, and has worked to make patient data more accessible for physicians, researchers, and patients. She founded the biomedical informatics program at UC San Diego School of Medicine in 2009. It went on to become a department at UC San Diego Health in 2015. The department develops informatics algorithms and systems that can extrapolate patient data from medical records for research and public health initiatives. Ohno-Machado is principal investigator for Integrating Data for Analysis, Anonymization, and Sharing (iDASH). iDASH is one of seven National Centers for Biomedical Computing, which are funded by the National Institutes of Health. The program—which partners with VA research on population analytics—is charged with developing new algorithms and tools to facilitate the secure, private sharing of health data. The academy cited Ohno-Machado for her work on those algorithms and others that allow researchers to access clinical data in a secure environment.

Dr. Rachel M. Werner

Dr. Rachel M. Werner is a core investigator at the Center for Health Equity Research and Promotion (CHERP) at the Philadelphia VA Medical Center. She is also professor of medicine and director of health policy and outcomes research at the Perelman School of Medicine, University of Pennsylvania. As a young investigator, Werner received the 2010 Presidential Early Career Award for Scientists and Engineers. Werner directs the VISN4 Center for Evaluation of Patient Aligned Care Teams (CEPACT)—VA's

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patient-centered medical home model. In that capacity she leads research teams that evaluate the effectiveness of the Veterans Health Administration medical home program. Werner is a prolific investigator and has published her research in high-impact journals such as *JAMA, Health Services Research,* and *Health Affairs*. The thrust of her research probes the effects of health care policy and delivery systems on the quality of patient care. She was among the first to recognize the unintended consequences of public reporting of quality measures in patient care. The academy cited Werner for advancing medicine's understanding of the dynamics of physician performance measurement and reporting.

Dr. Kelsey Potter-Baker
(Photo credit: Dr. Kelsey Potter-Baker)

VA spinal cord injury researcher receives award for top scientific paper

VA researcher Dr. Kelsey Potter-Baker received the Ernest Bors, MD Award for Scientific Development for 2017 from the editors of the *Journal of Spinal Cord Medicine*. JSCM is the official journal of the Academy of Spinal Cord Injury Professionals. The award is given each year for the best research article published by a young investigator.

Potter-Baker was cited for her work on an article discussing the use of transcranial direct current stimulation (tDCS) to restore function in patients with spinal cord injury (SCI). Potter-Baker and her team conducted a pilot study to investigate the combined effects of tDCS and rehabilitation on Veterans who had long-term, incomplete SCI that affected their ability to move their upper limbs.

Based on the positive results of the pilot study, the Cleveland Clinic's Lerner Research Institute has been awarded a $2.5 million grant to conduct a clinical trial based on Potter-Baker's work. The randomized trial will be conducted at multiple sites, to include the Cleveland Clinic, Louis Stokes Cleveland VA Medical Center, and Kessler Institute for Rehabilitation in New Jersey.

"We are delighted to have the opportunity to validate and extend our previous findings in a large clinical trial," said Potter-Baker told the Consult QD. "We look forward to offering this promising noninvasive method to more people

and ultimately see it become part of standard rehabilitation therapy."

Potter-Baker is a biomedical engineer and researcher with the Advanced Platform Technology (APT) Center at the Louis Stokes Cleveland VA Medical Center in Ohio. The APT Center is a research facility that focuses on the practical needs of individuals disabled by sensorimotor dysfunction, cognitive deficits, or limb loss.

She is also an investigator in the department of biomedical engineering at the Cleveland Clinic Foundation. Her work is focused on developing electronic devices that interface with neurons in the brain to help people recover loss of mobility that stems from SCI and brain trauma.

Transcranial magnetic stimulation (TMS) is a non-invasive procedure that is used clinically to measure damage to the central nervous system from a number of diseases like stroke. The FDA has approved TMS therapy to treat major depressive disorder, treatment-resistant depression, pain associated with certain migraine headaches, and obsessive compulsive disorder. It is also being tested for efficacy in a range of conditions like PTSD, stroke, and chronic pain. Unlike tDCS, where electrical currents are applied directly to the brain through electrodes, TMS makes use of a magnetic field to generate electrical currents in the brain.

**To find out more about the potential applications for TMS read "Studies using electrical stimulation, neuroimaging aim for new insights on TBI, PTSD" and "Brain stimulation technique shows promise in reducing fear in Veterans with PTSD."*

Want to hear about the latest in VA research, *direct* from the experts?
Listen to the Voices of VA Research podcast series:
www.research.va.gov/podcasts

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Dr. Terence M. Keane

VA psychologist and PTSD expert recognized by American Psychological Association

Dr. Terence M. Keane, director of the behavioral science division at the National Center for PTSD, has received the 2018 Presidential Award from the division of trauma psychology at the American Psychological Association (APA). The award, given annually, recognizes individuals who have "made unusual and outstanding contributions to the division of trauma psychology."

Keane, who serves as associate chief of staff for research and development at VA Boston Healthcare System, is an authority on posttraumatic stress. He is credited with developing some of the most commonly used PTSD assessment tools and has been a leader in using cognitive behavioral therapy for treating those with PTSD.

Keane, also a professor of psychiatry and assistant dean for research at Boston University School of Medicine, is noted for his seminal contributions to the understanding and development of treatments for PTSD. Over his career he has published more than 300 articles, chapters, and books on the subject. His recent published work includes journal articles that discuss the use of doxazosin (usually prescribed for high blood pressure or to improve urination in men with an enlarged prostate) for treating co-occurring PTSD and alcohol use disorder and the comparison of two different types of prolonged exposure therapy to better treat combat-related PTSD.

In 2015, Keane received the John Blair Barnwell Award, the highest honor from VA Clinical Science Research and Development. He is also the recipient of the Lifetime Achievement Award from the International Society of Traumatic Stress Studies, and the Outstanding Researcher Award in Cognitive Behavior Therapy from the Association for Behavioral and Cognitive Therapies.

Keane currently serves as president of the American Psychological Foundation, the philanthropic arm of the APA.

The APA, located in Washington, D.C., is the largest scientific and professional organization representing psychology in the United States. APA's membership includes more than 117,500 researchers, educators, clinicians, consultants, and students.

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Dr. Sarah Krein

Dr. Sanjay Saint

HSR&D announces Health System Impact Award recipients

Drs. Sarah Krein and Sanjay Saint are recipients of the 2017 HSR&D Health System Impact Award. This award honors Health Services Research and Development-funded research that has had an important impact on clinical practice or policy within the VA health care system. It also acknowledges work that has been successfully translated into VA operations.

Krein and Saint earned the impact award for their efforts to make Veterans' care safer by reducing the risks of unneeded and potentially harmful urinary catheters. The researchers are part of the VA Center for Clinical Management Research in Ann Arbor, Michigan. Their work has significantly changed practice across VA. Moreover, it has also driven changes in urinary catheter practice across the U.S. private sector, and around the world.

Epidemiologic data have revealed that Foley catheters are a major source of infections—often putting patients at risk. Saint was the first to find that physicians often do not know if patients have urinary catheters, and the first to demonstrate that reminders can limit urinary catheterization. He was also the first investigator to conduct a randomized clinical trial comparing indwelling and condom catheters.

Saint and Krein teamed up to identify barriers and facilitators of infection-control practices in U.S. hospitals. Their research reinforced the need for the use of a "bladder bundle" to reduce catheter-associated urinary tract infections (CAUTI). A bladder bundle is a set of practices that were developed through the experiences of hospitals participating in the Michigan Health and Hospital Association's Keystone Center program to reduce unnecessary use of urinary catheters.

The success of the bladder bundle resulted in its national implementation in more than 1,000 hospitals through support of the Agency for Healthcare Research and Quality. A follow-up AHRQ-funded study, guided by Saint and Krein, focused on CAUTI reduction in both community-based nursing homes and VA Community Living Centers. CAUTI rates in community-based sites decreased by a remarkable 54 percent during that initiative.

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