Armed Forces Medicine

2020

CAPITAL PUBLISHING

Active Duty
FOREWORD

Research for Readiness

Remarks from Assistant Secretary of Defense for Health Affairs, Thomas McCaffery, during the 2020 Military Health System Research Symposium

As more than 3,000 attendees gathered for the Department of Defense's premier scientific annual event, convening military medical researchers and providers, academia, international partners, and industry exchanged cutting-edge findings in military medicine. This year's theme was Research for Readiness, focusing on four priority areas: warfighter medical readiness, expeditionary medicine, warfighter performance, and return to duty.

Navy Rear Adm. Mary C. Riggs, deputy assistant director, research and development at the Defense Health Agency welcomed everyone, highlighting the importance of research and development to pave the way for successful partnerships for innovation. "Since 2012, MHSRS has been a powerful enabler to bring attendees together for discussion and collaboration for real solutions." Riggs concluded by introducing a new video featuring recent research accomplishments across the military medical enterprise.

Assistant Secretary of Defense for Health Affairs, Thomas McCaffery, offered his welcome and focused his remarks on the pivotal transformation the military health system in undergoing, what these changes mean for warfighters and patients, and the critical role of military medical research to advance the MHS's integrated system of readiness and health.

McCaffery underscored the significance of the transformation of the MHS, a unique, multi-billion-dollar a year enterprise with one of the largest health plans in the nation. He highlighted significant research and development activities that will impact transformation

Thomas McCaffery, assistant secretary of defense for health affairs. *Department of Defense photo by Marv Lynchard*

including leveraging national and international partnerships, a key part of the National Defense Strategy; supporting integrated and connected care through MHS GENESIS; collaborating with and among entities within the MHS; and acknowledging an increasingly complex global security environment.

McCaffery concluded, "The MHS is at a pivotal time: a time to challenge ourselves to go beyond the status quo, and identify new ways of doing business to integrate health care services, increase efficiencies, and deliver the highest quality services possible to our patients. I'm looking forward to hearing about what cutting-edge developments are on the horizon, and recognizing more great work from our research professionals."

Navy Vice Adm. Raquel C. Bono, director of the Defense Health Agency, took the MHSRS stage one final time as DHA director. Bono looked back at the significant accomplishments across the MHS during her tenure.

Navy Vice Adm. Raquel C. Bono. *Photo courtesy of the United States Navy*

She highlighted that health services research funding announced at last year's symposium is now available from DHA, describing how such research presents opportunities to broaden our perspective to impact national health care efforts. "Research is a unifying effort for effective collaboration," she said.

> "The MHS is at a pivotal time: a time to challenge ourselves to go beyond the status quo, and identify new ways of doing business to integrate health care services, increase efficiencies, and deliver the highest quality services possible to our patients. I'm looking forward to hearing about what cutting-edge developments are on the horizon, and recognizing more great work from our research professionals."
>
> — *Assistant Secretary of Defense for Health Affairs, Thomas McCaffery*

Bono also looked ahead to the future, noting how the impacts of climate change will require innovation to keep service members safe in extreme environments. Citing a 66% increase of active duty personnel with malaria, she said that infectious diseases and bug-borne illnesses are still impacting service member readiness, making research done by the Department of Defense Deployed Warfighter Protection Research Program all the more critical and timely.

Dr. Terry Rauch, Acting Deputy Assistant Secretary of Defense for Health Readiness Policy and Oversight, congratulated the science community for their strong track record in the last two decades with the highest survivability rates in the history of warfare and the greatest post-injury quality of life. He urged the scientists gathered to be ready to work even harder to address the many challenges ahead.

Terry Rauch, PhD, Acting Deputy Assistant Secretary of Defense for Health Readiness Policy and Oversight. *Photo courtesy of the National Institutes of Health*

One of the challenges he spoke of was the need for research solutions to help service members maximize their human potential across multi-domain operations — across space, cyber, air, sea and land. "Of paramount importance is research to optimize human performance to peak cognitive, physical, and emotional potential," said Rauch.

Retired Army Sgt. Oliver Campbell concluded the morning's plenary session with his riveting story. Campbell was shot by enemy snipers in Afghanistan in January 2016 during his fifth special operations deployment as an Army Ranger. His internal bleeding was so severe that an Army trauma surgeon performed an in-air thoracotomy, opening up Campbell's entire left chest, suturing the damaged blood vessel and massaging his heart in route to Bagram Air Field. "After seven minutes of death, my heart began to beat on its own," described Campbell of how the surgeon saved his life.

Campbell retired from active duty in 2016, and is now studying biology at Dartmouth College in New Hampshire. His ultimate goal is to serve as a military trauma surgeon. His military honors include a Purple Heart, two Army Commendation Medals and a Joint Service Achievement Medal.

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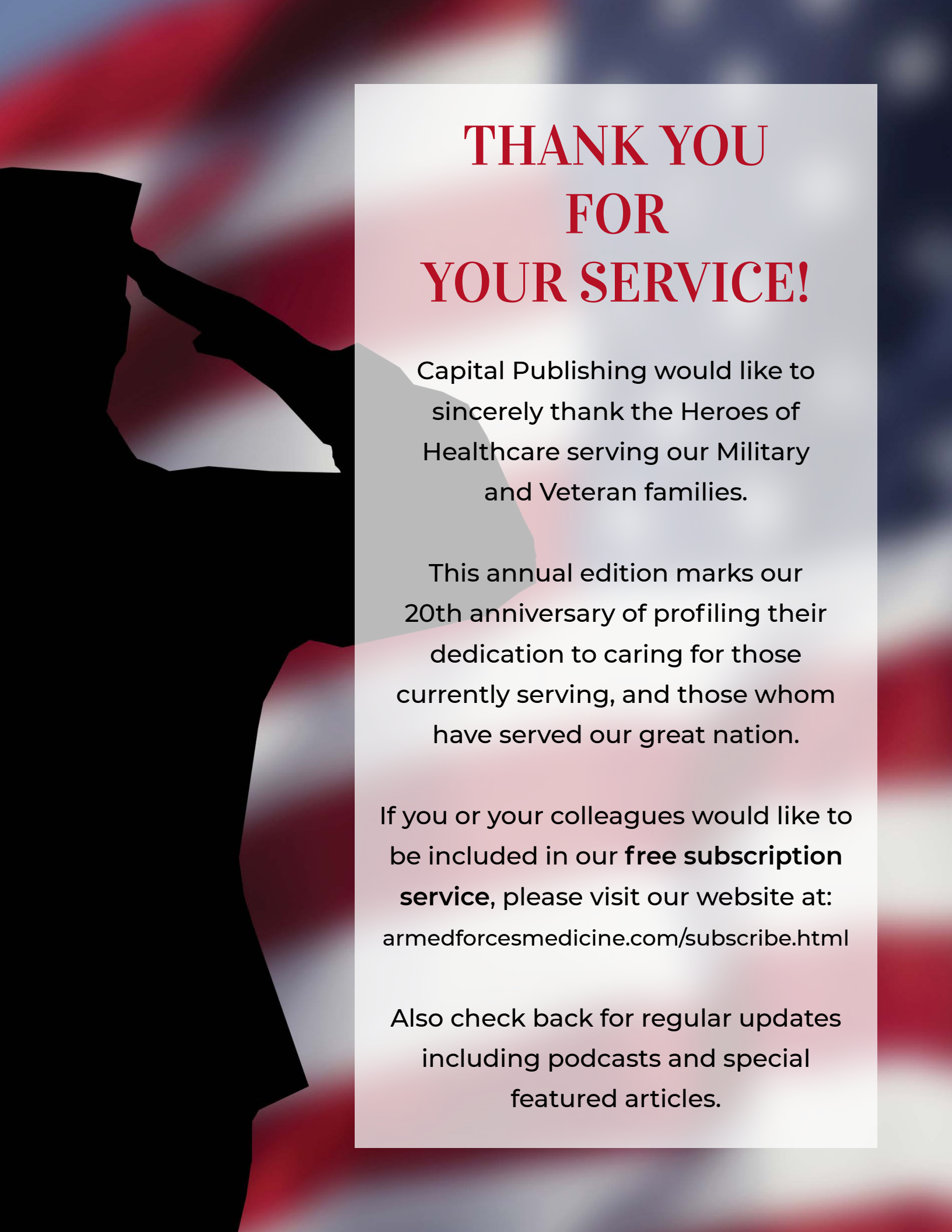

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2 WRAIR Researchers Named Top 50 'Most Influential People in Vaccines'

By Lisa Reilly, U.S. Military HIV Research Program

Col. Nelson Michael and Col. Jerome Kim of the Walter Reed Army Institute of Research made the list of the top 50 most influential people in vaccines for the first time. Vaccine Nation, a vaccine industry group, generates the list each year in collaboration with the World Vaccine Congress Europe.

Michael has been the director of the U.S. Military HIV Research Program at the WRAIR since January 2006, and guided the Program through the completion of the RV144 HIV prime-boost vaccine study. The clinical trial, an international collaboration involving more than 16,000 Thai volunteers, provided the world's first demonstration of the possibility of a preventive HIV vaccine.

Michael's research interests include HIV molecular pathogenesis and host genetics, HIV clinical research and HIV vaccine development. He is a professor of medicine with the Uniformed Services University. Michael currently serves on President Obama's Presidential Commission for the Study of Bioethical Issues as well as multiple scientific steering committees for the National Institutes of Health and the Office of the Global AIDS Coordinator. In 2013, he was inducted into the Association of American Physicians and was recognized as a Hero of Military Medicine.

Kim currently serves as the principal deputy of the MHRP and chief of the Department of Molecular Virology and Pathogenesis at the MHRP. He also serves as the project manager for HIV vaccines at the U.S. Army Medical Materiel Development Activity. Kim served as chief of the Department of Retrovirology at the Armed Forces Research Institute of Medical Sciences in Bangkok during the RV144 vaccine trial. As the product manager for HIV vaccines, he played a critical role in the clinical trial's execution and subsequent scientific analysis of the results.

Col. Nelson Michael, director of U.S. Military HIV Research Program at the Walter Reed Army Institute of Research

Col. Jerome Kim, Deputy Director and Chief, Dept of Molecular Virology and Pathogenesis at the U.S. Military HIV Research Program

Kim's research interests include HIV molecular epidemiology, host genetics and HIV vaccine development. He is also a professor of medicine at USU and was recently presented the Uniformed Services University of the Health Sciences John Maher Award for Research Excellence for work related to the identification of correlates of protection in HIV vaccines.

Shortly after results of RV144 were announced, the MHRP organized a vast collaborative scientific effort to analyze the results under the leadership of Michael and Kim. The MHRP and AFRIMS staff coordinated the distribution of thousands of samples from RV144 to 27 investigators around the world. In April 2012, the first paper was published in the New England Journal of Medicine detailing clues about the immune responses that may have played a role in protecting some volunteers from HIV in the RV144 HIV vaccine trial. Over 30 papers have followed, including ones in Nature, Science Translational Medicine, Immunity and The Lancet ID, providing new insights to inform future HIV vaccine development.

More recently, the MHRP, AFRIMS and USAMRMC have been working collaboratively with the Thai government to build on the success of RV144 by accelerating the development and testing of a similar pox-protein HIV vaccine prime-boost regimen in Thailand. An implementing arrangement was signed in 2014, which is part of a formal science and technology agreement between the two countries. The agreement commits the Thai government to provide capacity to manufacture the vaccine in Thailand if it is found to be efficacious in large-scale clinical testing. The Thai government issued a request for proposals for the biological production facility in August 2014.

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Active Duty
SPECIAL FEATURES

Tripler Celebrates 100 Years of Trusted Care

By Mackenzie Walsh and Col. Mark W. Burnett

Tripler Army Medical Center, the big pink hospital on the hill, celebrated 100 years of the name Tripler, June 26.

The celebration, marking 100 years of trusted care, began with a fitness team challenge among departments comprised of a 100 meter swim, 6.5 mile ruck, 3.2 run, and plank challenge in which the winner lasted more than 20 minutes. The day included an awards ceremony, specialty 1940s themed lunch, and cake cutting.

During the ceremony, congratulatory notes from Governor David Ige and Mayor of the City and County of Honolulu Kirk Caldwell expressing their gratitude and appreciation of the military ohana were read. Caldwell, in recognition of this important milestone, proclaimed June 26, 2020 as "Tripler Army Medical Center Day" in recognition of their significant contributions over the past century.

Tripler Army Medical Center — known locally as "the big pink building on the hill." *Photo courtesy of the U.S. Army*

"Tripler has a rich history of serving our nation when called for, whether caring for our patients suffering from the Spanish Flu over 100 years ago or firing at Japanese aircraft from our lanais while treating injured service members during the attacks on Pearl Harbor, [Tripler] always responds with resiliency, compassion, and innovation when caring for those in need," said Col. Martin Doperak, commander, Tripler Army Medical Center. "We were strong then and we are just as strong now as the team showed this morning showing their physical strength."

The oldest and youngest employees of Tripler join the hospital commander and command sergeant major in cutting the celebratory cake. *Photo courtesy of the Tripler Public Affairs Office*

Under General Order Number 40 from the War Department in Washington D.C. the Department Hospital Honolulu Hawaii was renamed Tripler General Hospital on June 26, 1920 in honor of Brevet Brigadier General Charles Stuart Tripler who served as the Medical Director for the Army of the Potomac during the Civil War. Though he was never stationed in Hawaii, he made many significant contributions to military medicine. He wrote Manual of the Medical Officer of the Army of the United States that

Serta Simmons Bedding Proud to Support COVID-19 Relief Efforts

U.S. bedding producer acts as healthcare system confronts capacity shortage

Serta Simmons Bedding (SSB), one of the nation's largest bedding manufacturers and proud supplier to the Veterans Administration, Army Air Force Exchange and the Navy, partnered with Relief Beds International to donate 10,000 mattresses in March to New York City hospitals and temporary medical facilities fighting the COVID-19 pandemic.

While the healthcare system's shortages of masks and ventilators have been heavily publicized, bedding was also dangerously scarce as the coronavirus spread and hospitalizations surged.

Beyond its 10,000-mattress donation, SSB also offered additional assistance, noting that its factories and expansive distribution network are capable of producing up to 20,000 beds per day.

In April, the company launched "Stay Home, Send Beds", a program that facilitated bed donations for hospitals and temporary medical facilities nationwide during the COVID-19 pandemic. Visitors to www.SertaReliefBed.com had the option to purchase up to 10,000 beds to be distributed in the city of their choosing.

For every 25 beds donated through "Stay Home, Send Beds", Serta donated an additional bed on top of the 10,000 mattresses it committed to New York City hospitals.

SSB was also proud to support a number of other organizations across the country with bed donations as part of its COVID-19 relief efforts, including the Veterans Administration.

"As one of the largest American producers of mattresses, Serta Simmons Bedding is committed to ensuring those who are hospitalized have a bed available where they can receive care and heal," SSB Chairman and CEO David Swift said.

•••

About Serta Simmons Bedding LLC
Serta Simmons Bedding, LLC is a leading sleep company and one of the largest manufacturers, marketers and suppliers of mattresses in North America. Based in Atlanta, SSB owns and manages two of the best-selling bedding brands in the mattress industry: Serta®, which has five other independent licensees, and Beautyrest®. The brands are distributed through national, hospitality, and regional and independent retail channels throughout North America. SSB also owns Simmons® and Tuft & Needle® direct-to-consumer mattress brands. SSB operates 27 manufacturing plants throughout the United States and Canada. For more information about SSB and its brands, visit www.sertasimmons.com.

Serta Simmons Bedding

Billie Holiday visits Tripler. *Photo Credit Col. Mark W. Burnett*

outlined basic physical requirements for recruits and Handbook for the Military Surgeon which standardized many of the Army's medical practices to include administration, hygiene, and surgery.

The roots of Tripler Army Medical center can be traced to 1898, during the Spanish-American war when troops were being treated in tents along the shores of Waikiki. In 1907 several wooden structures on Fort Shafter would then be used as the new hospital.

While located at Fort Shafter, those at Tripler, cared for those injured at the attack on Pearl Harbor and through the war's end. Throughout the World War II, an average of almost 2,000 patients per day were treated. To meet the growing need, the hospital expanded to nearby hospitals and schools. Still the only medical center in the Department of Defense to be so recognized, Tripler was awarded the Central Pacific battle streamer.

During the war, it was recognized that a larger facility would be needed, and plans were drafted for a hospital in Moanalua Valley. Lt. Gen. Robert C. Richardson, commanding general of U.S. Army Forces in the Pacific and military governor of Hawaii at the time, dreamed of a tropical oasis and place of solace for the U.S. Army solider to rest and recuperate both physically and emotionally. A premier architecture firm was brought in from New York to plan the hospital, replicating the coral pink color and landscaping of the Royal Hawaiian Hotel in Waikiki.

The new facility opened in 1948, offering the latest advances in both medicine and building construction, and at the time, claiming the title of tallest skyscraper in the Pacific. The hospital underwent a major expansion in 1985 adding 433,000 square feet of space.

Throughout its history, Tripler has been a popular site to visit amongst presidents, astronauts, kings and queens, sports stars and Hollywood entertainers.

Gemini and Apollo astronauts visit Tripler.
Photo Credit: Col. Mark W. Burnett

Ava Gardner and Frank Sinatra visit Tripler and sign a service member's cast.
Photo Credit: Col. Mark W. Burnett

It has been home to thousands of physicians, nurses, medics, nutrition care staff, and chaplains providing solace.

It has cared for expectant mothers, children afflicted with polio, injured and ill service members, and retirees serving in every conflict going back through the Spanish-American war.

For countless thousands wounded or POWs in Korea or Vietnam, Tripler provided the first feeling of being home. Today, Tripler serves more than 430,000 active duty military members, beneficiaries and veterans across the Pacific region.

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Active Duty
ADDICTION

Medically Assisted Treatment for Opioid Use Can Break the Cycle of Addiction, There is Hope

By the Military Health System Communications Office

The United States is in the middle of an opioid overdose epidemic, according to the Centers for Disease Control and Prevention, which calculates that more than 350,000 deaths are attributed to opioid overdoses nationwide since 1999. The military is at the forefront of efforts to help curb those numbers through its expansion of medically assisted treatment, also known as MAT.

Vice Adm. Raquel C. Bono, director of the Defense Health Agency, reported to the House Armed Services Committee last month that the military's rate of deadly opiate overdoses is a quarter of the national average, according to House transcripts. Dr. Fuad Issa, chief of the implementation section at the DHA Psychological Health Center of Excellence, said the availability of MAT has a lot to do with breaking the cycle of addiction.

In 2016, the Department of Defense expanded the availability of MAT as part of the TRICARE benefit, with the goal of increasing successful treatment and reducing the number of overdoses and deaths due to opiate abuse, said DHA clinical psychologist and senior policy analyst Dr. Krystyna Bienia.

"Drugs like methadone, naltrexone, and buprenorphine as a medically assisted treatment plan relieve withdrawal symptoms and psychological cravings that make opiate addiction so hard to overcome," she said. "Used correctly, and in conjunction with psychotherapy, support, and counseling, they can help users overcome the addiction to opioids."

The Substance Abuse and Mental Health Services Administration points out that the benefits of MAT include not only curbing withdrawal symptoms and preventing cravings, but also providing medical supervision. MAT works to normalize brain chemistry, block the euphoric effects of opioids (which include prescription drugs such as hydrocodone and oxycodone), and stabilize body functions without the negative effects of the abused drug. MAT has proven to be clinically effective and significantly reduces the need for inpatient detoxification. Bienia notes that MAT provides a comprehensive, individually tailored program of medication and behavioral therapy.

Yet some MAT medications have challenges of their own. Methadone, for example, doesn't produce euphoria; rather, it tricks addicts into thinking they're getting the opiate, according to the National Institute on Drug Abuse. Methadone works by changing how the brain and nervous system respond to pain. But according to Issa, methadone itself can be addictive. That's why Navy Capt. Edward Simmer, psychiatrist and chief clinical officer for TRICARE, believes it's important to realize that the medication is only one component of the treatment plan. He suggests part of his patients' treatment is going to 12-step programs such as Narcotics Anonymous, and including other community support.

"There's a large social component to drug use," Simmer said. "Relapses are often caused by being around others who use drugs, or stresses associated with drug use. Therefore, successful treatment requires eliminating these triggers to the greatest extent possible."

Bienia explained that the duration of MAT depends on the patient. "After months or a year or more of treatment, the medication can be gradually reduced and eventually stopped … but in some cases [it] has to be taken for a lifetime," she said.

Issa noted that in the past, opiate users had to get their medication at a special dosing site, but today, a prescription for drugs effective in alleviating opiate withdrawal symptoms, such as the combination of buprenorphine and naloxone, can be filled at a local pharmacy. The 2016 TRICARE Mental Health and Substance Use Final Rule allows TRICARE-authorized physicians to provide office-based opioid treatment.

Issa said he believes this may be making a difference, noting that in addition to TRICARE changes, DoD has been training medical providers on the risks of opioids. The number of DoD opioid prescriptions dropped by 56 percent between 2013 and 2017.

According to Bono's testimony to the House committee, less than 1 percent of active-duty service members are abusing or addicted to opioids.

In 2017, the DHA Psychological Health Center of Excellence, along with the Medical Directorate — National Capital Region, trained 192 physicians to prescribe MAT, and more nurse practitioners are being added this year to expand the network and coverage of MAT providers, said Issa.

"Beating an addiction is a drastic change in someone's life, but treatment works," said Simmer. "People do overcome addiction when everyone works together. There is hope."

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- cannot think well or clearly
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- liver problems
- gallbladder problems
- adrenal gland problems
- Addison's disease
- low thyroid hormone levels (hypothyroidism)
- a history of alcoholism
- mental problems such as hallucinations (seeing or hearing things that are not there).
- are pregnant or plan to become pregnant. If you receive SUBLOCADE while pregnant, your baby may have symptoms of opioid withdrawal at birth.
- are breastfeeding or plan to breastfeed. SUBLOCADE can pass into your breast milk and may harm your baby. Talk with your healthcare provider about the best way to feed your baby during treatment with SUBLOCADE. Watch your baby for increased drowsiness and breathing problems.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins and herbal supplements. SUBLOCADE may affect the way other medicines work and other medicines may affect how SUBLOCADE works. Some medicines may cause serious or life-threatening medical problems when taken with SUBLOCADE. Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist each time you get a new medicine.

The doses of certain medicines may need to be changed if used during treatment with SUBLOCADE. Do not take any medicine during treatment with SUBLOCADE until you have talked with your healthcare provider. Your healthcare provider will tell you if it is safe to take other medicines during treatment with SUBLOCADE.

You should not take anxiety medicines or benzodiazepines (such as Valium® or Xanax®), sleeping pills, tranquilizers, muscle relaxants, or sedatives (such as Ambien®), antidepressants, or antihistamines that are not prescribed to you during treatment with SUBLOCADE, as this can lead to slowed breathing, drowsiness, delayed reaction time, loss of consciousness or even death. If a healthcare provider is considering prescribing such a medicine for you, remind the healthcare provider that you are being treated with SUBLOCADE.

You may have detectable levels of SUBLOCADE in your body for a long period after stopping treatment with SUBLOCADE.

What should I avoid while being treated with SUBLOCADE?

- **Do not drive, operate heavy machinery, or perform any other dangerous activities until you know how this medicine affects you.** Buprenorphine can cause drowsiness and slow reaction times. This may happen more often in the first few days after your injection and when your dose is changed.
- **Do not drink alcohol** during treatment with SUBLOCADE, as this can lead to slowed breathing, drowsiness, slow reaction time, loss of consciousness or even death.

What are the possible side effects of SUBLOCADE?

SUBLOCADE can cause serious side effects, including:

See "What is the most important information I need to know about SUBLOCADE?"

- **Physical dependence and withdrawal.** Your body can develop a physical need for SUBLOCADE (dependence). If you stop receiving SUBLOCADE, you could have opioid withdrawal symptoms such as: shaking, goose bumps, muscle aches, sweating more than normal, feeling hot or cold more than normal, runny nose and watery eyes, or diarrhea or vomiting. These symptoms may start weeks to months after your last dose of SUBLOCADE.
- **Liver problems.** Call your healthcare provider right away if you notice any of these signs of liver problems: your skin or the white part of your eyes turns yellow (jaundice), urine turns dark, bowel movements (stools) turn light in color, decreased appetite, or stomach (abdomen) pain or nausea. Your healthcare provider may do tests before and during treatment with SUBLOCADE to check your liver.
- **Allergic reaction.** Call your healthcare provider or get emergency help right away if you get: rash, hives, itching, swelling of your face, wheezing or dizziness, or a decrease in consciousness.
- **Decrease in blood pressure.** You may feel dizzy when you get up from sitting or lying down.
- **The most common side effects of SUBLOCADE include:** constipation, headache, nausea, injection site itching, vomiting, increase in liver enzymes, tiredness, or injection site pain.
- Long-term (chronic) use of opioids, including SUBLOCADE, may cause fertility problems in males and females. Talk to your healthcare provider if this is a concern for you.

These are not all the possible side effects. Call your healthcare provider for medical advice about side effects.

This is only a summary of important information about SUBLOCADE and does not replace talking to your healthcare provider about your condition and your treatment. Talk to your healthcare provider if you have questions about SUBLOCADE. Share this important information with members of your household.

To report pregnancy or side effects associated with taking SUBLOCADE, please call 1-877-782-6966. You are encouraged to report negative side effects of drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

To learn more about SUBLOCADE, go to SUBLOCADE.com. For REMS information visit www.sublocadeREMS.com.

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Active Duty
AEROSPACE MEDICINE

Hospital's Aerospace Nurse Practitioner is First in the Air Force

By Samuel King Jr., 96th Test Wing Public Affairs

In July 2019, the 96th Medical Group became the first hospital in the Air Force to have an aerospace nurse practitioner on its staff.

Capt. Jessica Knizel was the first Airman assigned to the position by the Air Force Surgeon General. The 10-year nurse was the first of currently 10 nurse practitioners to accept the new Air Force job code of 46Y1F.

The new role will be to work directly with patients that require special standards of medical qualifications. Those include pilots, aircrew, missile crews, explosive ordnance disposal technicians among others. It is her responsibility those Airmen meet the medical standards for flying and special mission operations.

"As a nurse practitioner, I bring a unique perspective to the flight medicine community," said the 16-year Airman. "I have unique experience from the reserves and civilian sector that has well positioned me for the new and exciting ANP role."

In her position, Knizel assists with in-flight emergencies, disaster management along with exams, waivers and clearances. An ANP also preforms site visits and inspections to gain as much operational knowledge as possible to provide preventative medical guidance to the specialized aeromedical community.

"Our focus is on the whole patient, not just physically, but their well-being, their environment," said the former reservist, who entered active-duty service to take the ANP position. "The more knowledge and understanding we have about our patients and their jobs, the better care we can provide them."

To get a better perspective of her patients, Knizel trained with security forces and firefighters. Locally, she had hands-on training with EOD school technicians and trainees.

"I'm responsible for the health of flyers and divers," joked Knizel, who was a nurse practitioner for more than four years before moving up to this specialized level.

To meet the demanding flight/special duty qualifications, Knizel took on more than six months of aerospace/operationally focused training, such as the centrifuge, altitude chamber and water survival training.

Capt. Jessica Knizel, 96th Aerospace Medicine Squadron, became the first aerospace nurse practitioner in the Air Force in July 2019. She was the first of now 10 nurse practitioners to accept the new Air Force job code of 46Y1F. *U.S. Air Force photo by Samuel King Jr.*

"We are excited to be on the cutting edge of developing capabilities, such as the ANP," said Lt. Col. Anthony Mitchell, 96th Aerospace Medicine Squadron. "As we strive to ensure our fellow Airmen are ready to meet their mission at any time, the tactical realities of the flight/operational medicine clinic continue to evolve. This creates great opportunities to serve our patients and for flight surgeons and ANPs to get the job done together."

To reach the elite, Knizel must complete a unique set of training combining traditional flight surgeon skills with her nurse practitioner experience. She said it was all worth the effort to be able to help in an innovative way and be at the forefront of a new beginning for Team Aerospace.

"I am honored by this great opportunity and hope I can set the standard for those who will take up the challenge of this new Air Force career in the future," Knizel said.

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Active Duty
AEROSPACE MEDICINE

Aerospace Medicine Flight Surgeons

By Airman 1st Class Christina Bennett, 28th Bomb Wing Public Affairs

Flight surgeons, despite their official duty title do not perform surgeries while in flight. The misnomer stems from the early days of aviation medicine, when the U.S. Army Aviation Section ordered three military physicians to attend aviation school to ensure aircrew were physically prepared to fly. Today, flight surgeons are more commonly known as 'flight doctors' or 'flight physicians.'

In current times, flight surgeons still play a unique and integral role in the Air Force mission.

"Flight surgeons are rated officers and are thus required to log flight hours every month," said Maj. Andrew Pellegrin, a flight surgeon and chief of aerospace medicine at the 28th Medical Group. "This helps us to maintain the knowledge and credibility required to make decisions as to whether our aviators are fit to fly."

Pellegrin, who was awarded his flight surgeon wings in 2018, explained that flight surgeons must complete an aerospace medicine primary course in addition to having completed medical school and post-graduate medical training. After obtaining their flight surgeon wings, there are supplementary trainings that

Members of the 34th Bomb Squadron receive a step brief prior to launching from Ellsworth Air Force Base, S.D., May 19, 2020, for a long-range, long-duration Bomber Task Force mission in the U.S. European Command area of responsibility. Flight surgeons help to physically and mentally prepare aviators prior to missions. *U.S. Air Force photo by Airman 1st Class Christina Bennett*

An Airman assigned to the 28th Operations Support Squadron tests equipment for aviators prior to a more than 25-hour non-stop deployment from Ellsworth Air Force Base, SD, to the U.S. European Command area of responsibility May 4, 2020. In addition to caring for aviators, many flight surgeons serve as occupational medical specialists by monitoring the safety and health of the base population, particularly those who work in hazardous work environments. *U.S. Air Force photo by Airman 1st Class Christina Bennett*

must be completed within their first year. Examples include — advanced trauma support, centrifuge training and an aircraft mishap investigation course.

Pellegrin is well aware of the particular physical difficulties a crew member may face during aviation. Although not typical of all flight surgeons, Pellegrin was a pilot prior to attending medical school.

There are several physiologic stressors that can impact aviators during a mission, explained Pellegrin. Altitude, acceleration, increased radiation exposure and time pressure are examples of conditions that may come into play — depending on the aircraft and mission.

Recently, aircrew assigned to the 28th Bomb Wing participated in several long-range Bomber Task Force missions and flight surgeons were there to help aircrew members prepare.

"[Flight surgeons] work with aviators to educate them about proper sleep hygiene, circadian rhythms, nutrition and exercise," said Pellegrin. "Preparing for long-range missions starts well before the night prior to takeoff. We use computer models that predict how alert the crewmembers will be during each phase of the long duration sorties based on takeoff time, time zones, sortie duration, and other variables."

In addition to ensuring that aviators are fit to fly, many flight surgeons – dependent on their base – serve as occupational medical specialists. They help monitor the safety and health of the base population, particularly those who work in hazardous work environments.

"Every day we work with outstanding aerospace medical technicians, as well as colleagues in optometry, public health, bioenvironmental engineering, and others across the medical group and the base," said Pellegrin. "All of our colleagues have a tremendous impact on the mission, but flight surgeons get the opportunity to see it with our own eyes as part of our daily work."

Flight surgeons or 'flight docs' are an essential part of the mission. They ensure that every Air Force member is healthy and mission ready in order to provide airpower — anytime, anywhere.

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Active Duty
AEROSPACE MEDICINE

Fairchild KC-135 Supports Aeromedical Evacuation Training at Travis

By Senior Airman Lawrence Sena, 92nd Air Refueling Wing Public Affairs

Team Fairchild provided KC-135 Stratotanker support during aeromedical evacuation training for the 43rd Aeromedical Evacuation Squadron at Travis Air Force Base, Feb. 10-11.

Training consisted of familiarization of the KC-135 airframe for emergency evacuation procedures, simulated in-flight medical emergencies, aircraft emergency simulations and medical equipment for both Fairchild and Travis Airmen in order to qualify for semi-annual requirements.

"As an air refueling wing, we don't have a lot of aeromedical evacuation exposure, so this training provides us and our boom operators the opportunity to experience this type of mission first-hand," said Master Sgt. Anne Engebretson, 92nd Air Refueling Squadron B-Flight chief and aeromedical evacuation coordinator. "It's important for us to be able to support this mission and be prepared to respond with proficiency and success whenever called upon."

The KC-135 provides the core aerial refueling capability for the Air Force and helps accomplish its primary mission of extending global reach. However, the Stratotanker is also capable of medical transport for litter and ambulatory patients using support pallets during an aeromedical evacuation situation.

During aeromedical evacuation missions, two flight nurses

U.S. Air Force 1st Lt. Elayne Smith, 43rd Aeromedical Evacuation Squadron flight nurse, places electrocardiogram leads onto a training mannequin during an aeromedical evacuation training mission at Travis Air Force Base, California, Feb. 11, 2020. The 43rd AES is currently transitioning from its present station at Pope Army Airfield, North Carolina, to become part of the 60th AES at Travis Air Force Base, California, providing more training opportunities on the KC-10 Extender, C-5 Super Galaxy and C-17 Globemaster III based there, as well as KC-135s based out of Fairchild. *U.S. Air Force photo by Senior Airman Lawrence Sena*

U.S. Air Force Lt. Col. David Hernandez, 43rd Aeromedical Evacuation Squadron chief flight nurse, directs the boarding of medical training mannequins onto a Fairchild Air Force Base KC-135 Stratotanker during an aeromedical evacuation mission at Travis Air Force Base, California, Feb. 11, 2020. This is Fairchild's second Travis aeromedical evacuation training support mission, and with the new addition of the 60th AES team, Team Fairchild is looking forward to more training missions in the future. *U.S. Air Force photo by Senior Airman Lawrence Sena*

and three medical technicians are added to the KC-135 flight crew. This makes boom operators consider changes in weight, balance, equipment storage concerns and the needs of medics and patients to ensure effective communication between all personnel throughout the different phases of flight.

"We usually train and perform aeromedical evacuations on cargo aircraft, so working with the KC-135 is especially unique, since it is a refueling aircraft with a different platform than we are used to," said Tech. Sgt. Willson Tsao, 43rd AES noncommissioned officer in charge of aeromedical training. "With this platform, we also have to use different equipment, including a stanchion litter system that we have to build and attach to the aircraft ourselves, unlike cargo aircraft."

The 43rd AES is currently transitioning from its present station at Pope Army Airfield, North Carolina, to become part of the 60th AES at Travis Air Force Base, providing more training opportunities on the KC-10 Extender, C-5 Super Galaxy and C-17 Globemaster III based there, as well as KC-135s based out of Fairchild.

"We [aeromedical evacuation Airmen] are universally trained to perform on a variety of airframes, so it is important for us to be proficient and knowledgeable with each airframe we operate on," Tsao said. "We don't have a lot of access to the KC-135 here at Travis, so having a tanker from Fairchild down here is crucial in allowing us to meet our qualification training requirements for this aircraft."

This is Fairchild's second Travis aeromedical evacuation training support mission and with the new addition of the 60th AES team, Team Fairchild is looking forward to more training missions in the future.

"It's important for us to be ready to provide support for aeromedical evacuations, even though our primary mission is air refueling," Engebretson said. "The goal in the future is to have Airmen from all four air refueling squadrons here at Fairchild experience the aeromedical evacuation mission, ensuring they are able to respond and perform at a moment's notice."

Team Fairchild is able to strengthen their partnership with the 43rd AES by supporting their aeromedical evacuation training alongside mobility teammates at Travis Air Force Base, helping to build a modern mobility force that will ensure the delivery of strength and hope now and in the future.

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Active Duty
AUDIOLOGY

Center Develops Tool to Help Service Members Select Optimal Hearing Protection

By Larine Barr, Hearing Center of Excellence

Researchers studying hearing loss over the last decade have found that service members often don't wear hearing protection because they think the devices will block out critical sounds that are necessary to complete the mission.

This competing need to protect hearing while maintaining situational awareness makes wearing hearing protection an ongoing challenge, according to internal surveys conducted by military audiologists from each of the service branches.

"While hearing loss is a concern, we find that some service members accept it as a risk when more pressing or life-threatening duties depend upon having no hearing limitations or barriers," said Dr. Theresa Schulz, prevention branch chief for the Department of Defense Hearing Center of Excellence.

To address this challenge, the center has embarked on a two-phase initiative to develop an evidence-based Hearing Protection Device Evaluated Products List (HPD EPL) that will help service members and noise-exposed DoD civilians select the most appropriate personal protective equipment for their environment and missions. The overall initiative is to devise standardized methods for selecting hearing protection based on noise reduction, communication, and situational awareness requirements.

The first phase of the project was completed in March 2018, which included creating and distributing a product poster and guidebook that illustrates how to select a variety of passive hearing protection, such as earplugs, for continuous and impulsive (blasts or explosions) noise.

"The passive protection list is helping hearing health professionals, industrial hygienists, and safety professionals to better select and recommend passive hearing protection that is most effective for the noise environment and hearing-critical tasks service members perform," explained Schulz.

In addition to the poster and guidebook, the center participated in the development and publication of a national standard that provides methods for assessing how well open ear and head-worn devices can locate the direction of sound.

"For military members, being able to locate the direction and distance to gunfire, for instance, is critical in determining the location of enemies," said Schulz.

U.S. Marine Corps PFC. Andy Solis, a rifleman with 2nd Light Armored Reconnaissance Battalion, 2d Marine Division, wears hearing protection while firing his rifle at a notional enemy target during a live fire range on the National Training Center 20-05 in Ft. Irwin, California, March 22, 2020. The National Training Center is a unique opportunity that allows Marines and Sailors to train with and against a peer competitor in a conventional combat operational setting. *U.S. Marine Corps photo by Cpl. Elijah J. Abernathy*

According to project lead Kari Buchanan, an industrial hygienist with the center, phase 2 of the project will involve updating the guidebook to incorporate more tested devices, such as tactical communication hearing protectors, and developing service-specific educational materials to help commanders and service members select the optimum device.

"The HPD EPL is a tool that helps everyone select the right hearing protector for the noise environment both on and off the job," said Schulz. "It's for anyone responsible for providing, fitting, and using personal protective equipment. That includes military members and civilians, along with employers, commanders, supervisors, and leaders at all levels responsible for the safety and hearing health of their people."

Col. (Dr.) LaKeisha Henry, the center's division chief, is hopeful the EPL will lead to more widespread use and acceptance of hearing protection, which could have a positive impact on future hearing loss.

"Hearing loss can have severe consequences for our health and future well-being," said Henry. "With improved hearing protection selection and continued hearing health education, our service members and DoD civilians will be more inclined to use HPDs, which will significantly help to reduce hearing injuries across all Services."

health.mil

Active Duty
AUDIOLOGY

World Hearing Day Shines Light on Global Hearing Loss

By 633rd Air Base Wing Public Affairs Staff

The World Health Organization estimates 466 million people have disabling hearing loss. By 2050, that figure will almost double, affecting one in 10 people.

To raise awareness about hearing loss and why hearing health care is important, the World Health Organization designated March 3 as World Hearing Day.

"As we are well aware, the Hampton Roads community has a large and diverse military population," said Capt. Vienet Romero, 633rd Aerospace Medicine chief of audiology. "Here at the Langley Audiology Clinic, I have seen airmen, sailors, soldiers and coast guardsmen."

For service members, noise-induced hearing loss from exposure to hazardous noise on and off-duty is the most common type of hearing injury. According to the Department of Veterans Affairs, noise-induced hearing loss and tinnitus (ringing, buzzing and other sound in the ears) continue to be one of the most prevalent service-connected disabilities experienced by veterans.

However, that trend is shifting. Each of the military services administers a hearing conservation program, and coupled with the Department of Defense Hearing Center of Excellence, Comprehensive Hearing Health Program, are helping to reduce noise-induced hearing loss among active-duty service members, according to Dr. Theresa Schulz, the center's prevention branch chief.

An Airmen takes a hearing test at the Langley Audiology Clinic at Langley Air Force Base, Virginia. World Hearing Day brings attention to the issues service members face such as tinnitus and hearing loss.

"For service members and civilians enrolled in hearing conservation programs, hearing health is improving in the Department of Defense. Evidence of this is seen in an overall decrease in hearing impairment for all DoD components," said Schulz. "Service members with hearing impairment decreased from 21 percent in 2012 to 15 percent in 2018. The percent of civilians with hearing impairment decreased from 51 percent in 2012 to 40 percent in 2018."

Schulz added, "The Comprehensive Hearing Health Program benefits all service members, regardless of occupation or specialty, because noise is the most prevalent hazardous exposure faced by our service members on duty, but a significant amount of exposure occurs off-duty. A primary goal of program is to bring visibility to an invisible but preventable injury — noise-induced hearing loss."

For the general population, the National Institutes of Health, National Institute on Deafness & Other Communication Disorders reports about 20 percent of American adults, age 20 to 69 have some trouble with hearing, and roughly 28.8 million could benefit from the use of hearing aids. Among adults age 20 to 69, only about 16 percent of those who would benefit from hearing aids has ever used them, according to NIDCD.

To highlight the prevalence of hearing loss and importance of effective interventions, this year's World Hearing Day theme is, "Hearing for life: Don't let hearing loss limit you". The WHO emphasizes timely and effective interventions can ensure people with hearing loss are able to achieve their full potential, and interventions can facilitate access to education, employment and communication.

"Hearing is an integral part of daily communication for mission completion both on the job and at home," said Romero. "If a member has any concerns regarding their hearing, understanding conversations in the presence of background noise, or constant tinnitus, they should contact their Primary Care Manager for a referral to the Audiology Clinic."

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INVISIO

Tactical Communication and Hearing Protection Systems

The problem of noise-induced hearing loss is the most common military disability, as evidenced by over $1.5 billion spent in US alone on personnel hearing-related injuries in fiscal year 2016 alone.

Exposure to hazardous noise is critical as a damaged year cannot be repaired.
Hearing loss is not just a cost to society, it is a debilitating injury that degrades the quality of life and the ability to perform during critical missions.

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Active Duty
CARDIOLOGY

Cardiologist's Proudest Accomplishment is Serving Country

By Tech. Sgt. Louis Vega, 944th Fighter Wing Public Affairs

Five years ago at age 46, Lt. Col. John Beshai, 944th Aeromedical Staging Squadron flight surgeon, followed his heart and took the plunge to fulfill a dream he set aside in honor of his father's wishes.

As an infant in 1969, Beshai and his family came to America from Egypt in pursuit of better opportunities. His father wanted him to go to college and pursue a career, but Beshai had a growing desire to serve and give back to the country that offered him and his family opportunities as immigrants. After many years as a cardiologist, he found a way to merge his career with his dream and on October 24, 2015, he commissioned into the Air Force Reserve. He says it changed his life.

"It's been an incredible whirlwind of a ride so far," said Beshai. "Absolutely everything in my life has changed for the best."

Beshai has a long list of accomplishments and when he commissioned he was a cardiologist and faculty at the Arizona Mayo Clinic in the civilian sector. One year after commissioning, he left the prestigious career at the Mayo Clinic and started his own practice to have the availability to support his commitment to serve.

"I walked away to have more flexibility," said Beshai. "I am certain my wife thought I had been breathing in too much jet fuel on the flight line; I think she thought I was absolutely crazy."

Maj. John Beshai, 944th Aeromedical Staging Squadron flight surgeon, poses for a photo May 30, 2017 prior to a familiarization flight in an F-16 at Luke Air Force Base, Ariz. Beshai commissioned into the Air Force Reserve October 2015. *U.S. Air Force photo by Tech. Sgt. Louis Vega Jr.*

Dr. John Beshai, cardiologist, performs surgery. Lt. Col. Beshai is also a Reserve Citizen Airman flight surgeon, with the 944th Aeromedical Staging Squadron at Luke Air Force Base, Ariz.
Photo courtesy U.S. Air Force

As a flight surgeon, Beshai has made an impact at Luke Air Force Base, Arizona, supporting both the Reserve and active-duty missions.

"Dr. Beshai has been such an asset for our [Total Force Enterprise] team," said Lt. Col. Kristin 'Mother' Hubbard, 310th Fighter Squadron commander. "He brings a problem-solving attitude to every situation. He's positive and honest about what is within the realm of possible but his 'realm of possible' is virtually anything that will support the Airmen and the mission."

Beshai's persistence to follow his calling at any cost and immerse himself as a Reserve Citizen Airman appears to have benefited his life for the best. His successful medical practice is currently listed number one in Arizona in his field of expertise.

"I love that I get the opportunity to serve my country and wear the uniform with all of these amazing people who sacrifice every day and serve with their heart," said Beshai. "This has been a dream of mine as long as I can remember. Now that I have embraced the opportunity, I can honestly say that this has been the best decision of my life."

Beshai, now 51 years old, actively spoke about his experiences in the military and expressed his gratitude for what he has learned and relationships he has developed.

"I have come to understand the true meaning of comradery and the bond that we as military service men and women have with one another," said Beshai. "These men and women are family; true family."

He believes he has made some of the best friends ever at Luke Air Force Base and the feeling appears to be mutual.

"He is one of the most humble, talented, and selfless officers I've ever worked with," said Hubbard. "He has integrated into both the Reserve and active-duty family so much that we now consider him and his family to be like our own relatives."

Beshai has also been in the forefront helping develop strategies to mitigate the spread of the Coronavirus at Luke, to support the mission to train the next generation of fighter pilots.

"He helped us procure [Personal Protective Equipment] and thermometers for our fighter squadrons," said Lt. Col. Paul 'Ballz' Killeen, 69th Fighter Squadron commander. "We are truly blessed to have him in our family."

Beshai's leadership exemplifies the Air Force core values.

"'Dre' [Beshai] fully embodies what it means to be a Reserve Citizen Airmen and an absolute role-model in all aspects of life," said Killeen. "It takes a significant amount of dedication to be an internationally renowned cardiac electrophysiologist and still take time to be one of the best flight docs I've ever worked with over the past 19 years. He is always there to help our Airmen and families."

Beshai plans to continue serving and had advice for anyone seriously wanting to join the Air Force Reserve.

"You must be committed and dedicated," said Beshai. "Understand that not one single person is bigger than the Air Force regardless of what you do on the civilian side. Everyone wears the same uniform and everyone embraces the same core values."

From his humble beginnings in America to his accomplishments as a surgeon and Reservist, Beshai's success is evidence of his instilled values of respect, appreciation, and earning everything through hard work and perseverance.

Dr. John Beshai, cardiologist, talks with a patient. Lt. Col. Beshai is also a Reserve Citizen Airman flight surgeon, with the 944th Aeromedical Staging Squadron at Luke Air Force Base, Ariz.
Photo courtesy U.S. Air Force

"With hard work comes accomplishments of which I have been blessed. However, by far the one I am most proud of is being able to serve this amazing country. This country has provided endless opportunities for which I am grateful beyond words."

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Active Duty
CARDIOLOGY

Mercy's First-Ever Pacemaker Surgery a Success

By Petty Officer 3rd Class Jacob L Greenberg, Commander, U.S. 3rd Fleet

A pacemaker relies on batteries to regulate the heart's functions. When the batteries reach the end of their lifespan, the device, which is no larger than a sewing needle, needs to be replaced.

"In addition to a bad battery, the patient's pacemaker's leads, or wires, were dysfunctional," said Cmdr. Andrew Kaplan, a cardiac electrophysiologist from Phoenix, who led the surgery.

After Kaplan made the initial incision, about half the size of a business card, he removed the pacemaker and accessed the patient's left, subclavian vein to insert the new pacemaker lead using X-ray guidance, specifically a C-arm mobile X-ray system, to position the new lead into the right ventricle.

The system provided real-time, internal video to surgeons via the X-ray system's screens, which made this heart surgery minimally-invasive.

All medical personnel and support staff present in the operating room donned lead aprons and thoracic collars to shield themselves from unnecessary X-ray exposure.

Photo courtesy of U.S. Navy Mass Communication Specialist 3rd Class Tim Heaps

Capt. John Rotruck, left, hospital ship USNS Mercy's (T-AH 19) Medical Treatment Facility's commanding officer, observes a pacemaker surgery aboard the hospital ship. *Photo credit: U.S. Navy/MC3 Jake Greenberg*

During the surgery, the pacemaker's manufacturer provided guidance to cardiologists aboard Mercy via proprietary software via a WiFi conference call, which allowed for the virtual presence of technicians. The highly-trained technicians are pacemaker-programming experts and pioneers in the field.

They were able to view technical data, communicate and direct personnel in the operating room using this interface. Normally, representatives from the manufacturer would be present during pacemaker procedures, but due to safety restrictions, no outside personnel are allowed aboard Mercy.

Kaplan estimates that he has performed 10,000-15,000 similar surgeries, and credits the procedure's success to cohesion between the Sailors embarked aboard Mercy.

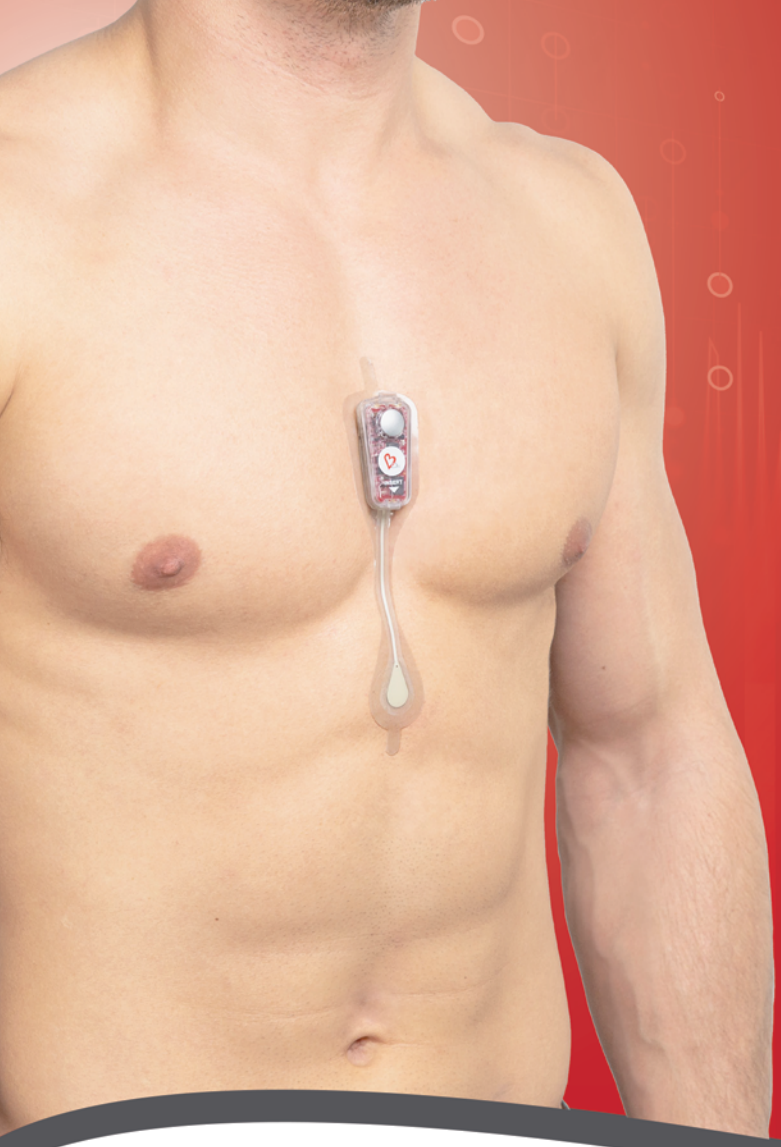
"This successful surgery shows that we have the capability to bring state-of-the-art technology to patients, whether in a humanitarian capacity or Sailors in a crisis," said Kaplan. "It demonstrates the ability that both active duty and reservist Sailors can quickly come together to create a highly-functional team in a safe manner aboard the ship."

A reservist himself, Kaplan drills with Operational Health Support Unit San Diego (Detachment B), and has never worked with any of the other surgical team members before. "Both the cardio technologist, Hospital Corpsman 1st Class Amelia Ibrahim, and the other cardiologist, Cmdr. Travis Harrell, are assigned to Naval Medical Center San Diego," said Kaplan.

Mercy deployed in support of the nation's COVID-19 response efforts, and serves as a referral hospital for non-COVID-19 patients currently admitted to shore-based hospitals.

This allows shore base hospitals to focus their efforts on COVID-19 cases. One of the Department of Defense's missions is Defense Support of Civil Authorities. DOD is supporting the Federal Emergency Management Agency, the lead federal agency, as well as state, local and public health authorities in helping protect the health and safety of the American people.

cpf.navy.mil



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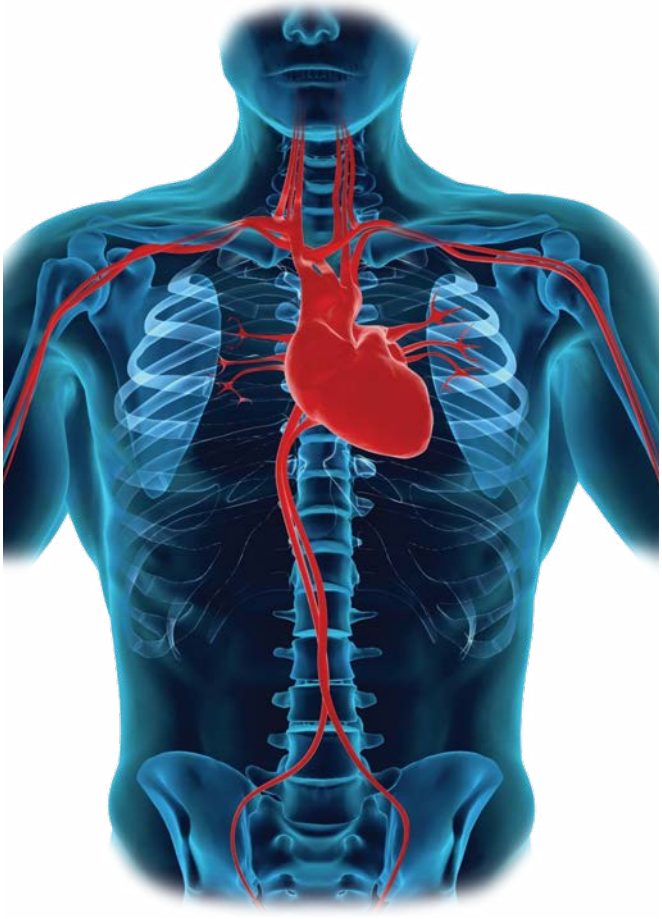
Active Duty
CARDIOLOGY

NMCP Hosts Heart Health Fair for American Heart Month

By Seaman Imani Daniels, Portsmouth Naval Medical Center

Naval Medical Center Portsmouth's (NMCP) Health Promotion and Wellness Department hosted a Heart Health Fair on Feb. 14, to raise awareness on heart disease during American Heart Month. The event featured informational pamphlets and statistics to educate the medical center staff and beneficiaries about the importance of taking care of your heart.

One in every four deaths in the United States is due to heart disease. That's nearly 610,000 Americans each year. Although these statistics are staggering, the good news is that many of the risk factors that contribute to heart disease are preventable and controllable if you're young at heart.



Graphic courtesy of U.S. Navy

U.S. Navy photo by Seaman Imani N. Daniels

Heart age is the calculated age of your heart after factoring in your risk factors for heart disease. It often varies from your chronological age. In fact, on average, American adults have hearts seven years older that their actual age. Advanced aging is due to a number of risk factors, such as high blood pressure, high cholesterol and smoking. When you consider that nearly half of all Americans have at least one of these three risk factors, that concern for heart disease becomes very real.

Fortunately, it's never too late to change your behaviors. Heart health can be improved at any age by eating healthy, exercising regularly, quitting tobacco, reducing stress, limiting alcohol consumption and managing your weight.

As the U.S. Navy's oldest, continuously-operating military hospital since 1830, Naval Medical Center Portsmouth proudly serves past and present military members and their families. The nationally-acclaimed, state-of-the-art medical center, along with the area's 10 branch health and TRICARE Prime Clinics, provide care for the Hampton Roads area. The medical center also supports premier research and teaching programs designed to prepare new doctors, nurses and hospital corpsman for future roles in healing and wellness.

dvidshub.net

Active Duty
DERMATOLOGY

U.S. Army Health Center Vicenza Shines a Blue Light on Skin Cancer

By Julie M. Lucas

Thanks to the generosity of the local Veterans of Foreign Wars organization, U.S. Army Health Center Vicenza now has a machine to treat precancerous and certain superficial skin cancer conditions. Vicenza's VFW Post 8862 purchased a photodynamic therapy machine and donated it to the clinic.

"I had mentioned the benefits of this machine to people we were treating for sun damage and precancerous conditions such as actinic keratosis, so they could look for that if they were PCSing to the States. Word got back to members of the VFW and they offered to purchase the device," said USAHC dermatologist, Lt. Col. Craig Maddox.

The machine uses different two different wavelengths of visible light, red and blue, which read a patient's face or other parts of the body that may have precancerous or superficially cancerous cells.

First a topical medication is applied, which is preferentially absorbed by the sun damaged cells over normal cells because they have a higher metabolic rate, Maddox said.

After a two-hour wait, the affected area is exposed to the light for 20 minutes. Patients can feel a slight stinging sensation during treatment, but after 24-48 hours there is little if any discomfort.

The treated skin will look as if the patient had a sunburn, but over the ensuing two weeks the affected skin peels and looks normal and rejuvenated two to three weeks later.

The traditional therapy with a cream requires at least two weeks of application and is significantly more uncomfortable, Maddox said. Then it takes another two weeks for the skin to recover.

Photo courtesy of USAHC Vicenza

Genetics and sun exposure play the main roles in determining the risk of skin cancer, with lighter skinned people being at greater risk of contracting skin cancer compared to people with darker skin complexions.

The PDT unit can replace this older method of treatment, according to Maddox.

Genetics and sun exposure play the main roles in determining the risk of skin cancer, with lighter skinned people being at greater risk of contracting skin cancer compared to people with darker skin complexions.

The PDT machine can also be used to treat acne, Maddox said. Patients are exposed to both red and blue light simultaneously, without any topical solution being applied. The protocol for this procedure requires 20-minute treatments, two to three times weekly for 10 weeks.

"Everyone will benefit from this machine," said VFW Post 8862 trustee Ron Reynolds. "The young folks going through the nasty acne period, older folks that have been exposed to sun for many years as well as our warriors that have been exposed to the hot weather in Afghanistan and Iraq."

army.mil

Active Duty
DERMATOLOGY

Blocking Out the Sun — Steps to Avoid Skin Cancer

By Airman Megan Friedl, 375th Air Mobility Wing Public Affairs

The 375th Medical Group is reminding Team Scott about taking precautions to avoid susceptibility to skin cancer this summer.

"Skin cancer is very preventable," said Lt. Col. Scott Carrizales, 375th Medical Group chief of dermatology services.

According to Maj. Emily Wong, 375th MDG dermatologist, wearing sunscreen of at least SPF 30 or 45, and wearing broad-rimmed hats and sun protective clothing can reduce the risk of skin cancer.

She said sunscreen should cover broad or full spectrum, and be water and sweat resistant. People should have it re-applied every four hours and should stay away from direct sunlight during the hours between 10 a.m. to 2 p.m.

Also, many lotions and makeup contain sunscreen to make it easily available for people to use.

Lt. Col. Scott Carrizales, 375th Medical Group chief of dermatology services, administers photo dynamic therapy to a patient at the dermatology clinic June 14 at Scott Air Force Base, Ill. The photo dynamic therapy treats some cancerous skin, but is mostly used for preventative care. *Photo Credit: U.S. Air Force Airman Megan Friedl*

Individuals who have lighter skin, red hair, light blue or green eyes or have a family history of skin cancer have a higher susceptibility to the disease. However, anyone can get skin cancer.

Skin cancer can appear anywhere on the skin. The face, neck, back of arms and hands are the most common places that cancer has appeared. Squamous and Basal Cell Cancer is the most commonly seen at the base medical clinic. These forms of skin cancer may result in red, shiny, pearly or scaly skin.

Melanoma is the other type of skin cancer. It has the highest mortality rate. It is responsible for 75 percent of skin cancer deaths.

According to the 375th MDG, to find if someone has skin cancer early on, self examination is imperative. When looking at yourself for any skin cancer it is good to remember your ABCDE's, which stands for Asymmetry, Border, Color, Diameter and Evolving. All of those factors should be considered when looking at moles and other marks that could be cancerous on your skin.

Carrizales said, "Currently 30 patients come in to the clinic for follow-ups of Melanoma. All of them were found early and are getting better."

According to American Academy of Dermatology, even Melanoma, which can be deadly, has a cure rate of almost 100 percent when treated early.

The Scott Clinic offers many types of treatment for skin cancer patients. Patients may receive screenings and biopsies to determine if the patient has a presence of cancerous material and how severe it is. Surgical excisions, electrodessication and curettage which are scraping and burning of the cancer may be used as treatment. Medicines in the form of creams can also be applied to get rid of cancer. Further treatment may be done including photo dynamic therapy which is a blue light that kills cancer cells.

Lt. Col. Scott Carrizales, 375th Medical Group chief of dermatology services, applies liquid nitrogen on a patient's head to treat the focal area of the actinic keratosis, which is precancerous skin, June 14 at Scott Air Force Base, Ill. Skin cancer can appear anywhere on the skin. The face, neck, back of arms and hands are the places that cancer has appeared most on patients. *Photo Credit: U.S. Air Force Airman Megan Friedl*

scott.af.mil

Active Duty
EMERGENCY

Vermont National Guard Helps Hospital with Emergency Care

By 1st Lt. Chelsea Clark, 58th Fighter Wing

Twenty-nine members of the National Guard served on a task force with the Emergency Department (ED) at the University of Vermont Medical Center.

Members of the Vermont National Guard spent several weeks in late March working in an altered ED layout as the State of Vermont activated the National Guard to support a unified response to the COVID-19 pandemic.

Within 72 hours, the task force, composed of C Company (Medical), 186th Brigade Support Battalion, and support personnel from across the 86th Infantry Brigade Combat Team, Vermont National Guard, set up a treatment area to help the ED in anticipation of a surge of COVID-19 patients.

"It was really amazing to see it all come together, especially considering that we had half the task force not C-MED organic, so it's folks we've never seen before and never worked with before," said U.S. Army Maj. Joseph Phelan, Charlie Company commander. "They're from the CAV (Cavalry), from the BEB (Brigade Engineer Battalion), for them to jump right in, they did a phenomenal job."

Members of the Vermont National Guard and employees of the University of Vermont Medical Center wheel a notional patient to a triage station as part of a Mass Casualty Exercise at the UVM Medical Center in Burlington, VT on April 15, 2020. The Vermont National Guard is working with the state of Vermont and emergency partners in a whole-of-government effort to flatten the curve during the COVID-19 pandemic. Photo credit Cpl. Gillian McCreedy

The Burlington hospital's emergency entrance was transformed with temporary traffic cone patterns and three large Army tents. All the staff wore face masks, suits and gloves. Patients would drive up and talk with a triage nurse and provider to determine treatment.

Some patients were treated right in their vehicle – bandages were applied for smaller cuts or scrapes — while others moved into the ED or to the treatment tent for care. C Med Soldiers helped treat more than 140 patients.

Treatment teams included three medics and a provider, with an equivalent team on standby. Other personnel assisted with drive-through triage services and checking in patients and transporting them in the hospital. One to three medics eventually rotated through the emergency department, providing patient care while shadowing nurses and providers.

"It was a great opportunity to grow in their skills as a medic, to be able to do rotations in the ER, and learn from providers and nurses there and give care to patients and just be able to use their skills in a setting other than training," said U.S. Army Staff Sgt. Andralee Strassner, a combat medic with Charlie Med.

Many Guard members traveled from out of state to support the mission, including Strassner from New Hampshire, and members from New Jersey and New York. Several were out of work in their civilian positions.

"I work in health care myself, but not in a hospital setting considered essential," Strassner said. "Being able to come somewhere where I am considered essential and being able to make a difference in a community that I know they really appreciated the help that we were able to provide for them and take a little stress off of their ER staff, it just means a lot to be able to do that."

Of the 29 Soldiers, 24 volunteered to remain on after ED surge operations, anticipating new missions to support the state.

Phelan called the mission an "amazing opportunity to work side-by-side with our civilian partners" to help them fill gaps or needs.

"We were treating and serving our neighbors ... Vermonters – they did it, they lowered the curve and should be proud of that."

army.mil

Active Duty
EMERGENCY

Goodfellow AFB's 312th TRS Modernizes Emergency Medical Responders Course

By Airman 1st Class Robyn Hunsinger, 17th Training Wing Public Affairs

Manikins have been used since the 1960s, helping medical professionals learn how to accurately assess and treat patients in a simulated situation. The first medical manikins were used to teach resuscitation; later they were developed for teaching things such as anesthesiology and childbirth.

The 312th Training Squadron at Goodfellow Air Force Base, Texas, recently acquired new and improved HAL Manikins as a training tool in the emergency medical responders course. These manikins allow students to diagnose and assist the patient by taking vitals and asking questions.

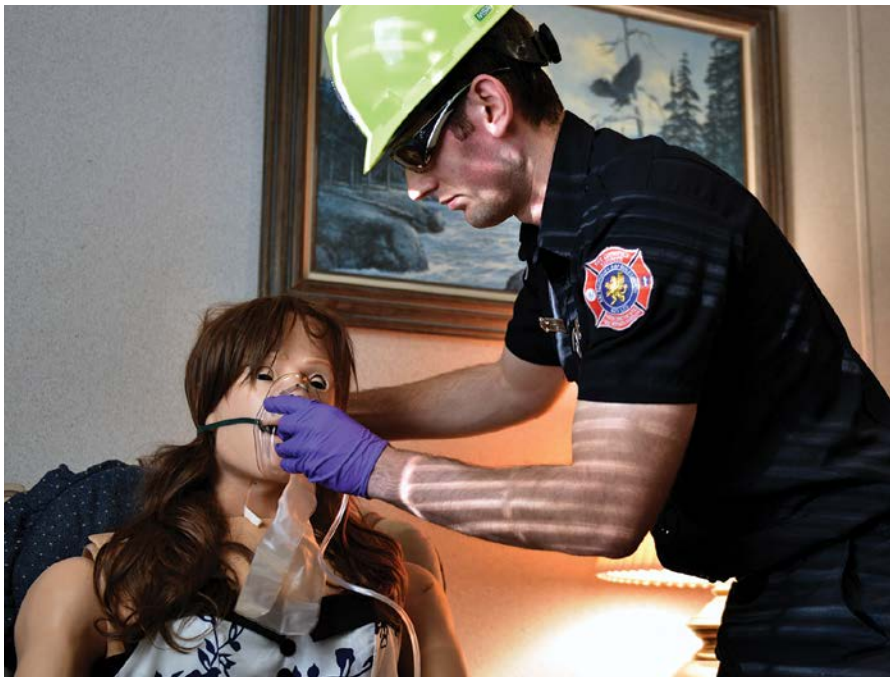
"The students come in and act as EMR teams of two to three with all their equipment," said Tech. Sgt. Chad Johns, 312th TRS fire protection instructor supervisor and head of the EMR course rewrite. "The students will ask the patient, 'what seems to be the problem?' and based on the patient's answers, they will provide treatment for that patient. If the patient was having difficulty breathing, they would give oxygen, making sure to take their vitals and ask them some questions about what might be going on and their history."

To integrate this new technology, the EMR course was rewritten and gives students a more realistic training environment.

"It makes a world of difference when you have a simulated person that can respond to everything you say, actually has vitals and has a pulse," said Navy Petty Officer 2nd Class Charles Taylor, 312th TRS fire protection student and aviation boatswain's mate aircraft handler. "You can see if they are breathing, see if they react to any stimulus. They almost feel like actual human beings."

The manikins were donated to Goodfellow AFB by Howard College in San Angelo.

Students from the 312th Training Squadron arrive at a simulated emergency scene during the Emergency Medical Responders course, Jan. 28, 2020, at the Louis F. Garland Department of Defense Fire Academy on Goodfellow Air Force Base, Texas. The EMR course consists of both classroom lecture and hands-on skills training which covers patient assessment, treatment and use of various medical equipment. *Photo by U.S. Air Force Airman 1st Class Robyn Hunsinger*



A 312th Training Squadron student provides oxygen to a patient simulated by a HAL Manikin during the Emergency Medical Responders course, Jan. 28, 2020, at the Louis F. Garland Department of Defense Fire Academy on Goodfellow Air Force Base, Texas. The manikins are set up in separate rooms in a simulated apartment building allowing instructors to give students multiple scenarios from a separate control room. *Photo by U.S. Air Force Airman 1st Class Robyn Hunsinger*

Charles Almeida, 312th Training Squadron Emergency Medical Responder Course Training instructor, monitors students and controls the HAL Manikin during a mock emergency medical situation from a separate control room, Jan. 30, 2020, at the Louis F. Garland Department of Defense Fire Academy on Goodfellow Air Force Base, Texas. Instructors of the course can control the manikins' vitals, speech and eye movements, including pupil dilation. *Photo by U.S. Air Force Airman 1st Class Robyn Hunsinger*

"We received the manikins from Howard College through a grant," Johns said. "We received one of them and it was terrific. We found out everything that they can do. They can do more than what we need. It's an amazing tool for us. Once we received one of them, we were able to receive two more, also through Howard College."

The three manikins are set up in separate rooms in a simulated apartment building, which allows instructors to give students multiple scenarios from a separate control room. The instructors can control the manikins' vitals, speech and eye movements, including pupil dilation, from the control room.

"We have a tablet that allows us to control the manikin through that tablet," Johns said. "We monitor the manikin and the students and how they interact through a camera set up in the room. Based on the students' questions, we can answer them through that tablet. We have prerecorded responses that we can give the students through the manikin itself."

Although it is still the same EMR course provided to medical professionals nationwide, the new equipment and course rewrite allows students a glimpse of how an emergency situation will feel.

"The class being rewritten to be more hands-on does prepare me a bit more but it doesn't just help me here obtaining the information," Taylor said. "In the event of a real-world situation, it takes away some of that edge of nervousness and gets me into the mindset of being able to see the issue and taking the steps needed to assist the person. In the unfortunate chance that something does go wrong, I know I will be ready to respond."

With the new HAL Manikins, the 312th TRS can provide their students with a real-world setting and simulation of how to accurately assess and assist a patient in emergency and trauma situations.

"Everything that this manikin can do is what we geared the new course rewrite toward," Johns said. "We wanted a patient to be able to tell the student what is going on with them without it being another student or an instructor. They can do all of that. We are perfectly happy with the way EMR is running its training right now. We have absolutely revolutionized our EMR training here at Goodfellow."

airforcemedicine.af.mil

Active Duty
EMERGENCY

Celebrating National Blood Donor Month, With Thanks For Mission-Critical Donations

While there is some debate about whether 2020 officially starts a new decade, there is no doubt that 2020 marks the 50th anniversary of the designation of January as National Blood Donor Month. On Dec. 31, 1969, President Richard Nixon issued Proclamation 3952, stating:

> I … do hereby designate the month of January 1970 as National Blood Donor Month. I call upon the public media, the blood-banking and medical and health facilities of our country, and the public at large to pay special tribute and honor during that month to the voluntary blood donor and to encourage, by all appropriate means, increasing numbers of people to be voluntary blood donors.

The Armed Services Blood Program gladly celebrates this observance each year by recognizing the generous blood donors and volunteers whose critical contributions save the lives of warfighters worldwide. Ensuring that service members, their families, retirees, and veterans have a safe, ready supply of blood products is the mission of the ASBP. The program doesn't make mission without donors, the 'heart' of the ASBP.

Said Army Col. Audra Taylor, ASBP division chief: "We are honored to recognize the thousands of blood donors who roll up their sleeves each year to ensure our warfighters have the blood they need when it's most needed. As 2020 brings us a new decade and new challenges, the one thing we can count on is you — donors — to be there for our service members in need."

The impetus behind January as NBDM is that, historically, donations taper off in and around the holiday and winter season for several reasons, including an increase in illnesses, vacations, and schedule shifts. While this is the case, the need for blood products never stops. Knowing that less than 38 percent of the population is eligible to give blood, and from that population, only about 3 percent of those do so regularly, any decrease in donations makes the need even greater. Your selfless gift helps ensure the warfighter is provided with lifesaving products whenever and wherever needed.

A new decade is an exciting time full of promise; giving the gift of life promises a great way to begin. In honor of NBDM, many ASBP donor centers are holding special ceremonies for donors like you. Join in on the celebrations by donating blood or platelets. To make an appointment or find out more about, visit the ASBP website.

Armed Services Blood Program Division Chief Army Col. Audra L. Taylor

Concludes Taylor: "To all who took the time to roll up your sleeves and donate blood in the past year, and to those planning to do so again in 2020, thank you! Your lifesaving gift is mission critical."

About the Armed Services Blood Program

Since 1962, the Armed Services Blood Program has served as the sole provider of blood for the United States military. As a joint operation, the ASBP collects, processes, stores and distributes blood and blood products to service members and their families worldwide. As one in four national blood collection organizations trusted to ensure the nation has a safe, potent blood supply, the ASBP works closely with our civilian counterparts by sharing donors on military installations where there are no military collection centers and by sharing blood products in times of need to maximize availability of this national treasure.

About Division Chief Army Col. Audra L. Taylor

Col. Taylor has received a distinguished education in the medical and health science sector and is the first female director of the Army Blood Program. She has actively participated in the implementation of Group O Low Titer Whole Blood (LTWOB), cold storage platelets (CSP) in theater, the blood management system and several ongoing research and development efforts. "I am honored to continue my work with the Armed Services Blood Program and further the efficacy of our efforts to save the lives of Soldiers, Sailors, Airmen, Marines and their families around the world. It is my mission to implement improvements to the support we provide to those in need," said Taylor, "Our program and our donors build a critical bridge between illness and health and between death and life."

militaryblood.dod.mil

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Active Duty
ENDOCRINOLOGY

Proper Nutrition Can Help Manage Diabetes

By J.D. Levite, Air Force Surgeon General's Public Affairs

Good nutrition is important for any healthy lifestyle, but for diabetics balancing nutrition, activity and medication is vital. Carbohydrates, for example, are nutrients found in bread, milk, starchy vegetables and fruit that turn to sugar in the blood. Other simple carbohydrates found in sweets and sugared drinks are the first to limit when monitoring weight and blood sugar. A person diagnosed with diabetes is lacking insulin or is insulin resistant so that the body can't process these sugars normally.

The Air Force Medical Service has Registered Dietitian Nutritionists who can serve as a resource to Airmen and their families when they want or need to make a change to their diet.

"It's paramount to change nutrition to manage diabetes," said 1st Lt. Abigail Schutz, the Chief of Clinical Dietetics at Joint-Base Elmendorf-Richardson, Alaska. "The body responds well to decreasing total carbohydrates intake for blood sugar management. We also talk about pairing carbs with nutrients such as fiber or protein to control the rate of sugar going into the blood."

Schutz said while she handles a lot of patients dealing with an initial diagnosis of diabetes, she also handles cases where people were initially diagnosed, and did not make the appropriate changes or need a review of the most current recommendations for diabetes management.

"There's still a stigma against diabetes. It's super common but people still want to hide it or feel ashamed by it," Schutz said. "It can be managed very easily with some education, and I do think it's important to encourage folks to seek help."

Schutz said people tend not to know how the disease works and they go into denial about the need for behavior change. Her role, and the role of other dietitians, is to help clarify all of that.

For example, reading food labels is pretty important to diabetics and there are changes coming from the Food and Drug Administration to highlight different aspects of the food label. They're adding a new section for "added sugars" so consumers will know how much of their calorie intake is being taken up by sugar. This specific label change will help eliminate confusion. In addition Vitamin D and Potassium will be listed. Vitamins A and C will no longer be required on the nutrition label. She said Vitamin D is something many people are deficient in and the identification of potassium on labeling is helpful for people that experience renal issues; which 40% of diabetics suffer from.

Some of the other changes include more realistic serving sizes based on what people are actually eating. Larger and bolder fonts for the more important parts of the label like the calorie label and serving size will make it easier for clients to read.

"Label reading is huge in terms of education, especially for somebody dosing insulin," Schutz said. "Insulin is dosed based on the carbohydrate load, and the ratio is crucial for Type 1 Diabetics. They don't produce insulin, so they have to count their carbs." Folks with Type 2 Diabetes also can learn to carbohydrate count for better blood sugar control along with adequate activity and lifestyle changes such a stress management techniques.

She said behavior changes might take an appointment or two, but eventually a healthier lifestyle becomes second nature for people.

"Carbs are essential for the body to function. It's a very common misconception that with diabetes you have to avoid carbohydrates, but actually our goal is just to make it consistent throughout the day. There are no "bad" foods or nutrients. Many times, if you want a food, you can have it. Just reduce the portion size."

Schutz said behavior change can be hard in any circumstance but seeing a dietitian is the right call.

"People get diagnosed with diabetes and think their life is over. But that education piece of what this looks like and how it can be managed is really important for quality of life," she said. "Work with goals that are reasonable and doable or the disease never gets managed. Design behavior around those things."

Schutz named several good online resources for diabetics looking for visuals, recipes, or peer-reviewed nutritional information including the USDA's MyPlate, the American Diabetes Association, and the home of the Academy of Nutrition and Dietetics.

airforcemedicine.af.mil

Active Duty
ENDOCRINOLOGY

Air Force Diabetes Prevention Program Shows Promising Results

By Shireen Bedi, Air Force Surgeon General Public Affairs

"I wish I knew this 30 years ago," is a common feeling among Air Force veterans after receiving diabetes education. Like most of the 89 million Americans with prediabetes, many active duty Airmen do not know the ways they can prevent or delay the onset of diabetes.

With 1 in 3 Americans at risk for diabetes, researchers and health professionals at the Wilford Hall Ambulatory Surgical Center in San Antonio, found it critical to implement and test the Group Lifestyle Balance program. The GLB program is a diabetes prevention program that was originally developed at the University of Pittsburgh and piloted at seven Air Force bases. The program targets those at risk for developing diabetes, including anyone with elevated blood sugars, metabolic issues, or a family history of diabetes.

Diabetes, specifically Type 2 diabetes, is largely attributed to a poor diet and a sedentary lifestyle. Targeting these factors is at the core of the GLB program. The Diabetes Center of Excellence utilizes this program to help patients prevent or delay diabetes by engaging active duty, veterans, and their families in preventative health behaviors.

"Diabetes is a costly and progressive disease," said Nina Watson, a retired Air Force Lt. Col. and current certified diabetes educator with the Diabetes COE at Wilford Hall. "Many people do not realize they can delay or even prevent diabetes just by changing their lifestyle."

Initially the GLB program consisted of an intensive 12-week program that focused on overall health and behavior change. It has expanded to a one-year program that provides ongoing group and lifestyle coach support after the initial 12 weeks. The course relies on periodic, face-to-face

Diabetes Center of Excellence certified educator, Col. (retired) Nina Watson (left) and research director, Jana Wardian, PhD (right) have studied the positive outcomes of the Group Lifestyle Balance program at seven Air Force Bases.
Photo courtesy of the U.S. Air Force

meetings, weekly assignments, and group support. During this time, patients learn how to improve their diet and make healthier dietary choices. Additionally, they learn ways to increase their physical activity; the goal being to develop positive behaviors that become lifelong habits.

"Continuing education and support after the initial intervention is integral to preventing relapse and solidify behaviors," said Nina Watson.

Currently, the Diabetes COE has a manuscript accepted for publication in Military Medicine describing their experience providing the GLB program. The program demonstrated impressive results for those who completed the first 12 weeks. Significant improvements were seen on weight, body mass index, and cholesterol in the participants. These improvements not only mean improved overall health, but also mean participants are more likely to delay or prevent the onset of diabetes.

In addition to the focused education, group support for the participants created much of the program's success.

"The group accountability and support makes it easier to overcome challenges and celebrate successes," said Regina Watson, the health promotions program manager for the Air Force Medical Support Agency. "Just knowing that they would meet with the same people every week made participants look forward to these meetings. They felt better knowing other people were dealing with similar challenges."

The GLB pilot did yield another important finding — active duty participants with prediabetes dropped out of the program at a higher rate than any other group. With almost 13,000 active duty Airmen with prediabetes, it is an issue that needs to be addressed.

"Airmen may believe that because of their physical fitness requirements, they are not at risk for diabetes. Many Airmen can pass the physical fitness test despite poor lifestyle choices. They may not realize how difficult treating diabetes can be later in their life if they continue the same behaviors," said Nina Watson. "It is vital to get this information to younger Airmen so they adopt lifestyle behaviors that could help them live a long and healthy life."

The GLB program is looking to increase its reach to all at-risk Airmen using technology like telemedicine, mobile messaging, and fitness applications. This can expand the program to all Air Force medical facilities and allow Airmen to receive support even after the program ends.

"The Diabetes COE is the best kept secret in the Air Force and we want the GLB program to be a priority for all at-risk active duty Airmen," says Nina Watson. "After all, a healthy, fit Airman is the most valuable asset the Air Force has.

airforcemedicine.af.mil

Active Duty
FIELD MEDICINE

National Guard Gives Combat Medic Priceless Training

By Spc. Tyler O'Connell

A female combat medic specialist from the small town of Estelline, South Dakota, is attached to the 1-147th Field Artillery Battalion during Operation Atlantic Resolve in Grafenwohr.

Spc. Leannah TeKrony has been drawn to the medical field and the military ever since she was a child.

"It started when I was about 8 years old," said TeKrony. I had a huge respect for military personnel and I had a doctor's outfit with a stethoscope, so I would pretend to be a military medical person."

TeKrony had her doubts about being able to join the military.

"I didn't understand when I was younger that women could be in the military at the time," said TeKrony. "As I got older, I realized there are things like the National Guard and how more military occupational specialties have opened up to women. There came a point when I realized, I can do that."

After the doubt passed, fear of talking to a recruiter started to settle in.

"It was kind of scary to me because I knew if I went to a recruiting office that I was going to join," said TeKrony. "After talking to a recruiter a few times, I felt a deep calling and I knew it was what I wanted to do, especially if I could get into the medical field."

> TeKrony highly recommends anybody interested in entering the medical field join the National Guard as a combat medic specialist.
>
> "It would be a great steppingstone into the medical career," said TeKrony. "Not only are you more exposed on the military side, but you also get the experience to carry into the civilian side."

Spc. Leannah TeKrony, 1-147th Field Artillery Battalion, Combat Medic Specialist, participates in Operation Atlantic Resolve in Grafenwohr, Germany, Jan. 30, 2020. It is important to develop interoperability with allies and partners to keep the trust. *Photo Credit: U.S. Army*

During initial training, TeKrony received three top awards: Iron Medic, Leadership Award and Distinguished Honor Grad, and was selected for a significant leadership role in training.

"It's a pretty difficult course," said TeKrony. "It was the first time in my life where I was really recognized for doing what I felt was right. I was crazy humbled and honored."

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continued from page 36

Spc. Leannah TeKrony, Combat Medic Specialist, 1-147th Field Artillery Battalion, demonstrates how to put on a tourniquet properly during Operation Atlantic Resolve in Grafenwohr, Germany, Jan. 30, 2020. *Photo Credit: U.S. Army*

TeKrony then found herself attached to the 1-147th Field Artillery Battalion, where she went on back-to-back deployments, one with each battery.

"I never wanted to just sit in South Dakota," said TeKrony. "I never want to sit in just one place, that's why these deployments have been great. I like to go places and do and see different things."

Hard times and times of learning come with deployments.

"A few things that I learned on the first rotation is that you need to use that feeling you feel when you don't know and it makes you uncomfortable," said TeKrony. "I use that to motivate myself to search for answers and to go ask people for help."

Throughout all that time as a combat medic, a Soldier gets to learn a lot of medical procedures that most civilian nurses are not allowed to do.

"I've gotten to do sutures, cyst removal, toenail removal, wart excisions on feet and fingers," said TeKrony. "It's pretty amazing because a lot of the time on the civilian side, it is only the providers that are allowed to do such things."

TeKrony has been taking college classes while deployed to further her medical career.

"I've definitely been drawn to a lot of specialties in my life," said TeKrony. "After being here, I would definitely like to work in an ER; however there is a part of me that would like to go to a more dangerous place to be able to take care of these things that happen daily, whether that be in the Army or civilian side."

TeKrony highly recommends anybody interested in entering the medical field join the National Guard as a combat medic specialist.

"It would be a great steppingstone into the medical career," said TeKrony. "Not only are you more exposed on the military side, but you also get the experience to carry into the civilian side."

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Active Duty
FIELD MEDICINE

Unleashing Innovation to Support Field Medics, Corpsmen

Imagine unmanned vehicles bringing medical supplies or blood products to support a field medic's care of wounded soldiers, or even transporting a wounded warfighter to safety. Researchers at the Army's Telemedicine and Advanced Technology Research Center, or TATRC, are collaborating with the services, academia, and private industry to make such scenarios a reality.

"Our Medical Robotics and Autonomous Systems or MED-RAS research projects are focused on extending up-and-coming robotics and autonomy technologies to military medicine," said Dr. Gary Gilbert of the Army Futures Command Medical Research and Development Command, Telemedicine and Advanced Technology Research Center at Fort Detrick, Maryland. Gilbert and his team have four research objectives to mirror themes identified by the Department of Defense "Unmanned Systems Integrated Roadmap 2017-2042": interoperability, autonomy, network security, and human-machine collaboration.

A drone lifts off during the Hive Final Mile demonstration on Marine Corps Base Quantico, Virginia. Drones are one of the autonomous technologies that might soon be helping medics provide care for warfighters on distant battlefields. *U.S. Marine Corps photo by Sgt. Jacqueline A. Clifford*

Last year, the Armed Services Biomedical Research Evaluation and Management Community of Interest, which includes members from across the Department of Defense, met to discuss how autonomous evacuation and care could support military medical services in the field. Their report described the need for a cross-services effort to build strategic partnerships within DoD that make implementation possible.

The MED-RAS research projects build upon technological advancements that will enhance the expertise and skills of medics and corpsmen on the battlefield through the use of artificial intelligence-based tools, such as mobile devices or drones that can deliver needed technology. Gilbert explained that such assistance will serve multiple purposes. It will provide support to make informed treatment decisions, perform artificial intelligence-based patient monitoring and diagnosis, and automatically record the patient's data.

The TATRC team is also researching how to support wounded service members for long periods of time using robotic devices that automatically medicate patients and assist with breathing or replacing fluids, according to Rebecca Lee, a TATRC biomedical engineer. Such advances, combined with drone delivery of medical supplies or blood products, could be force multipliers for field medics or corpsmen who can't evacuate casualties quickly due to inaccessible terrain or enemy threats. The third research effort, according to Nathan Fisher, a robotics and mechanical engineer and another member of the TATRC team, focuses on developing medical technologies that are less or not at all reliant on a medic's assistance, such as diagnosing a patient, taking X-ray images, and evacuating casualties without a human being present. Future breakthroughs in robotic technology could also enable remote surgery capabilities in forward environments, Fisher explained.

Autonomous medical care is beginning to move into the mainstream. In Africa, medical centers are being resupplied by UAVs. In the United States, a drone delivered a kidney for transplantation from one Baltimore, Maryland, hospital to another across the city.

"Development of semi-autonomous to fully autonomous medical care and transport systems will be a tremendous force multiplier," said Midboe. "With the right leadership and financial support, we'll be able to collaborate across the services and engage with industry to capitalize on the newest technology and execute our autonomous care and evacuation capability goals."

health.mil

Active Duty
GASTROENTEROLOGY

Research Shows Connection between Stress and Stomach Ulcers

By U.S. Army CCDC Army Research Laboratory Public Affairs

New U.S. Army-funded research demonstrates a connection between stress and stomach ulcers, conducted at the University of Pittsburgh Brain Institute and funded by the Army Research Office traced neural pathways that connect the brain to the stomach, providing a biological mechanism that explains the connection. ARO is an element of the U.S. Army Combat Capabilities Development Command's Army Research Laboratory.

"The bidirectional connections between brain and gut are important conduits for communication within the mind-body axis," said Dr. Frederick Gregory, ARO program manager. "The biological mechanisms into how stress might influence cognitive performance plays a central role in future strategies to mitigate Soldier stress through diet or other new gut-centric interventions. Not only is this important for combat missions but for the overall health and well-being of the entire Army."

These findings were published in the Proceedings of the National Academy of Sciences, build a scientific basis for the brain's influence over organ function and emphasize the importance of the brain-body connection. Until now, research exploring the gut-brain interaction has largely focused on the influence of the gut and its microbiome on the brain and neurological disorders. But it's not a one-way street — the brain also influences stomach function.

"Pavlov demonstrated many years ago that the central nervous system uses environmental signals and past experience to generate anticipatory responses that promote efficient digestion," said Peter Strick, PhD, Brain Institute scientific director and chair of neurobiology at Pitt. "And we have long known that every increase in unemployment and its associated stress is accompanied by an increase in death rates from stomach ulcers."

To find brain regions that control the gut, Strick and his coauthor David Levinthal, MD, PhD, assistant professor of gastroenterology, hepatology and nutrition at Pitt, used a strain of rabies virus to track connections from the brain to the stomach.

After being injected into the stomach of a rat, the viral tracer made its way back to the brain by hopping from neuron to neuron — using the same trick that rabies virus uses to infiltrate the brain after entering the body through a bite or scratch — to reveal the brain areas that exert control over the stomach.

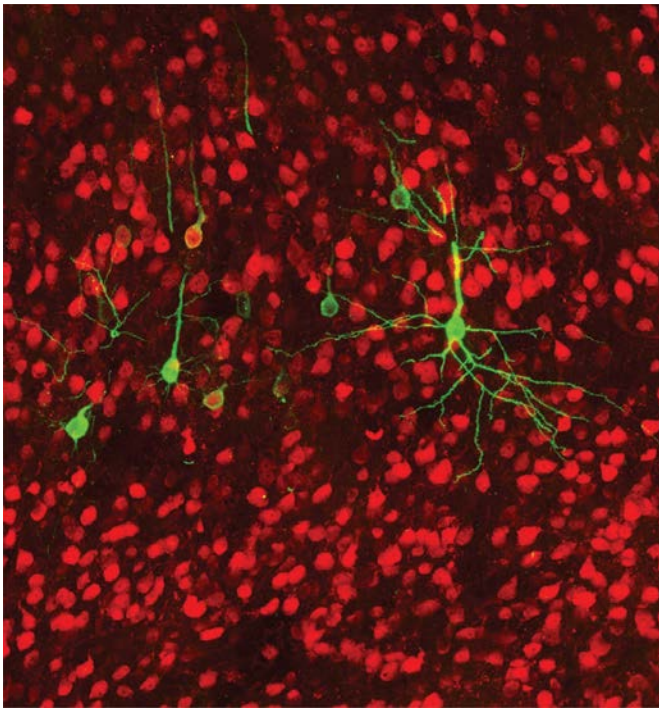
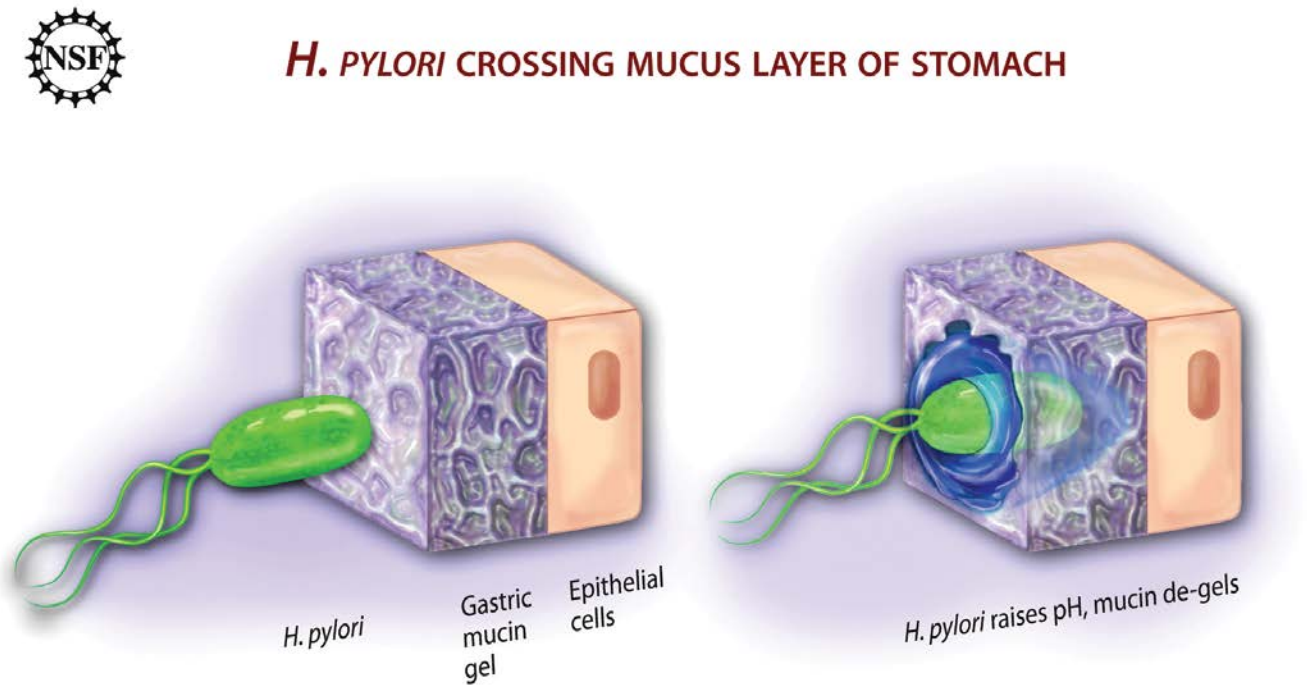


Photo credit: U.S. Army CCDC Army Research Laboratory

The researchers found that the parasympathetic — rest and digest — nervous system pathways trace back from the stomach mostly to a brain region known as the rostral insula, which is responsible for visceral sensation and emotion regulation. "The stomach sends sensory information to the cortex, which sends instructions back to the gut," Strick said. "That means our 'gut feelings' are constructed not only from signals derived from the stomach, but also from all the other influences on the rostral insula, such as past experiences and contextual knowledge."

In contrast, the sympathetic — fight or flight — pathways of the central nervous system, which kick in when we're stressed, predominantly trace back from the stomach to the primary motor cortex, which is the seat of voluntary control over the skeletal muscles that move the body around.



Courtesy of National Science Foundation

Identifying these neural pathways that connect the brain and stomach could provide new insights into common gut disorders.

For example, Helicobacter pylori infection typically triggers ulcer formation, but descending signals from the cerebral cortex could influence the bacteria's growth by adjusting gastric secretions to make the stomach more or less hospitable to invaders.

These insights could also change clinical gastroenterology practice. Knowing that the brain exerts physical control over the gut gives doctors a new way to approach bowel problems.

> "The biological mechanisms into how stress might influence cognitive performance plays a central role in future strategies to mitigate soldier stress through diet or other new gut-centric interventions. Not only is this important for combat missions but for the overall health and well-being of the entire Army."
>
> — Dr. Frederick Gregory, ARO program manager

"Several common gut disorders, such as dyspepsia or irritable bowel syndrome, might not get better with current treatments," said Levinthal, who is also a gastroenterologist at UPMC. "Our results provide cortical targets that will be critical for developing new brain-based therapies that might be helpful for our patients."

Gregory said that this is particularly relevant to combat casualty care where there are often bowel problems such as traveler's diarrhea that can affect the overall health and performance of the military.

In addition to the U.S. Army, the National Institutes of Health and the DSF Charitable Foundation supported this work.

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Active Duty
INFECTION PREVENTION

Expert Panel on Infection Control to Tackle COVID-19 Questions

By Military Health System Communications Office

During the COVID-19 pandemic, the Defense Health Agency has received a flood of questions from military treatment facilities about infection control and prevention. The questions focus on providing a safe environment for patients and staff against the highly contagious respiratory virus.

"The rapidly evolving nature of this global pandemic has presented unique challenges for clinical management," said Helen Crouch, infection prevention program manager, Quality and Safety Center U.S. Army Medical Command.

The DHA responded by gathering experts from the field and created a tri-service panel known as the Infection Prevention and Control Tiger Team. The IPC Tiger Team provides evidence-based answers to approximately 475 military hospitals, medical clinics and dental clinics within the Military Health System in a timely fashion, said team member Christopher Florez. "This team provides recommendations to the DHA task force, similar to the White House task force, which provides timely consistent, unified, evidence-based guidance for decisions," added Florez, program director, EPIC Course AF/SG infection prevention consultant.

The IPC Tiger Team includes subject matter experts with various backgrounds in infection prevention and control, pharmacology, health care information technology, dentistry, quality, safety, and medical logistics. The fixed 12-member panel meets daily to review COVID-19 issues and questions from across the MHS.

Many of the questions posed to the team have dealt with personal protective equipment in different situations and potential scenarios. In April, the team began providing answers to common questions "based on the most current clinical guidance from various federal agencies, professional organizations, and peer reviewed publications," according to Crouch.

The IPC Tiger Team is also taking requests for video consultations that leverage virtual health capabilities to provide "real time" assistance. Recently, the team conducted its first virtually enabled consult about infection control and prevention with the U.S. Naval Hospital Guam. "We are extremely excited to offer this capability," Crouch added.

Under normal circumstances, infection prevention and control is key in any health care setting. Such measures directly impact the readiness of service members, explained Crouch. In the swiftly changing health care environment of COVID-19, the goal of the IPC Tiger Team is to provide unified expert guidance to the field, she said.

Personnel with the United States Public Health Service Commissioned Corps help staff with the donning and decontamination of Proper Protective Equipment in Detroit, Michigan, April 17, 2020. U.S. Northern Command, through U.S. Army North, provide military support to Federal Emergency Management Agency to help communities in need. *Photo by U.S. Army Spc. Miguel Pena*

"We receive about 10-15 questions per week and the majority of the questions are complex, and require a significant amount of research. Our team works diligently to provide a concise, evidence-based, relevant answer," said Elizabeth Campbell, the infection prevention control manager at the Naval Health Clinic Annapolis.

The IPC Tiger Team has combed through research publications and other resources created by front-line health care workers to find evidence-based solutions that can protect patients, visitors, and staff in MTFs, added Campbell.

"It has been truly amazing to witness how people have come up with new and innovative ideas to deal with health care challenges related to COVID-19. There have been some fantastic ideas and processes, which will undoubtedly become best practices," she said.

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Active Duty
INFECTION PREVENTION

Nurse Consultant Works to Keep MEDDAC Bavaria Infection Free

By Alain M. Polynice, U.S. Army Medical Department Activity Bavaria Public Affairs Office

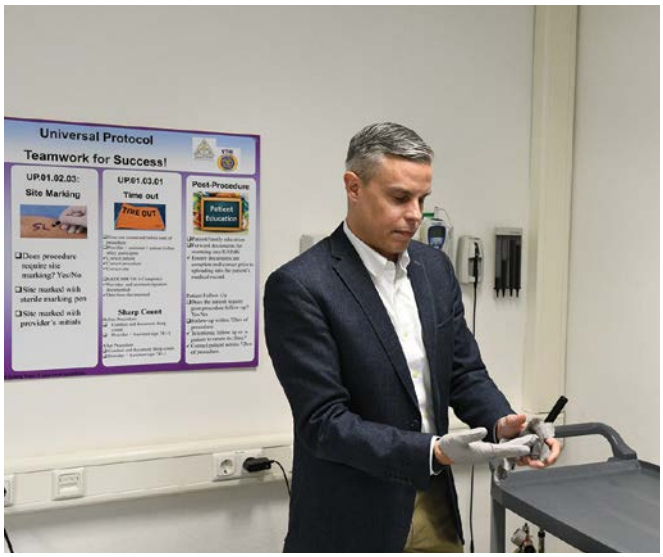
When it comes to infection prevention, Joey Scaletta, a nurse consultant for infection prevention and control for U.S. Army Medical Department Activity Bavaria, is passionate about his job and how he is able to influence good habits to those he coaches and works with.

Scaletta, a native of Baltimore, Maryland, has been part of the MEDDAC Bavaria organization since September 2016. His background in infection prevention goes as far back as 1991 when he first began his career as an epidemiologist, a public health professional who analyzes and studies the distribution of infectious diseases in order to treat existing diseases and prevent future outbreaks.

"Infection prevention is a broad science — including microbiology, nursing, pharmacology, infectious disease — and we use all of those disciplines to make patient care safer, and to provide good quality care for our patients," said Scaletta.

Scaletta worked several years as an infection control epidemiologist for the Maryland Department of Health. As time passed, he decided to move to Kansas and apply for position working with the Kansas Department of Health and Environment as their director of Healthcare-Associated Infection Program. He quickly realized working in infection prevention and control in Kansas was not going to happen.

Joey Scaletta, a nurse consultant for infection prevention and control for U.S. Army Medical Department Activity Bavaria, explains the importance of safety and being careful when handling sharps, medical devices like needles, scalpels, and other tools. *Photo courtesy of the U.S. Army*



Joey Scaletta explains the importance of using medical gloves used during medical examinations and procedures to help prevent cross-contamination. *Photo courtesy of the U.S. Army*

"When I got to Kansas I was very promptly told that only nurses in Kansas do infection control," said Scaletta.

Not allowing this setback to discourage him, Scaletta did something about it. "I went back to nursing school at age of 34, and got a nursing degree and back into the profession I love," he said.

Scaletta's journey to MEDDAC Bavaria began when a friend of his, who was working in Germany, called him January 2016 and told him about the position of infection prevention and control that was about to become available to applicants and encouraged him to apply for the position, which he did.

"The infection prevention community is tight," he said. "We're able to sustain friendships that last decades. [She] called me up January 3 and said, 'Joey, I'm about to make you an offer that you can't refuse.'"

Nine months later, Scaletta, who never saw himself working for the military, began his civilian-military career with MEDDAC Bavaria as its nurse consultant for infection prevention and control. His impact on MEDDAC Bavaria is felt throughout the entire organization, to include the organization's five Army health clinics he visits at least twice a quarter.

"The program components of infection prevention and control directly impact mission care and mission safety," Scaletta said. "The things that we do every day — washing our hands, environmental disinfection, using antibiotics correctly, being careful with sharps devices (needles, syringes, lancets) — that makes care safer provisions."

As the lone nurse consultant for infection prevention and control for MEDDAC Bavaria, biggest challenge Scaletta faces is coordination with all five health clinics due to the complexity of healthcare and its fast pace.

"[The clinics] are pretty much the same but they have their own idiosyncrasies," Scaletta explains. "The care we deliver in healthcare today is complex and it is very fast pace. It is hard to do the right thing every time and keep up that pace."

For Scaletta, communication is the key in ensuring MEDDAC Bavaria personnel are doing the right thing and that they are continually practice good habits.

He is always reminding people to do the right thing, such as washing their hands to help reduce and minimize the spread of germs to a patient. Often times he will talk one-on-one with clinic personnel, whether it is the healthcare provider or a nurse, and ask the individual to walk him through the process of what they are doing.

"[I am] constantly reminding people and working with people to instill good habits," Scaletta adds. "People want to think they are doing a good job. But sometimes they're not and that's where [I] coach and mentor, and [I] help cross train."

Joey Scaletta explains the importance of safety and being careful when handling sharps, medical devices like needles, scalpels, and other tools. *Photo courtesy of the U.S. Army*

Scaletta, who operates alone, does have some help in keeping MEDDAC Bavaria infection free.

Each clinic has an infection prevention and control (IPAC) facilitator, an additional duty assigned to a clinic personnel, who handles the day-to-day operations of infection prevention and control for that clinic. For Scaletta, working with each IPAC facilitator is the most rewarding aspect of his position.

"I love working with the new people that were given this other duty," Scaletta adds. "To help them grow in their knowledge and their subject matter expertise — to really own the program at the local level — I love seeing that."

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Active Duty
INFECTIOUS DISEASES

World AIDS Day Puts Spotlight on Landmark DoD Study

By the Walter Reed Army Institute of Research

The Walter Reed Army Institute of Research (WRAIR) hosted a World AIDS Day event Tuesday, Nov. 26, highlighting advances in DoD-led HIV research and celebrating the 10th anniversary of the Army-led RV144 HIV vaccine study.

WRAIR's Military HIV Research Program or MHRP headed the RV144 study, the first-ever — and only to-date — clinical trial to demonstrate that an HIV vaccine regimen was safe and modestly effective in preventing HIV infection. The study sought to determine what methods could be used to lower risk of contracting the disease.

The RV144 trial represented a massive undertaking for the Army and serves as a model of international and interagency collaboration. It involved more than 16,000 adult volunteers and a large network of partners who still work with WRAIR today, including the Thai Ministry of Public Health; the National Institute of Allergy and Infectious Diseases — part of the National Institutes of Health; and Sanofi Pasteur.

In 2009, the Army announced that the study's investigational prime-boost vaccine regimen lowered the rate of HIV infection by 31.2 percent. These results, although modest, gave the global community hope that a vaccine to prevent HIV infection is possible at a time when such an achievement seemed elusive.

"RV144 was the light at the time in the field, without which we may have given up," said Dr. John Mascola, director of the National Institutes of Health Vaccine Research Center and the featured speaker at WRAIR's World AIDS Day event.

Dr. John Mascola, director of the National Institutes of Health Vaccine Research Center, discusses HIV vaccine progress at the Walter Reed Army Institute of Research, Nov. 26, during a World AIDS Day commemoration. *U.S. Army photo*

"In the last 10 years of HIV vaccine progress, RV144 is the anchor."

The landmark trial continues to provide scientific direction to help guide vaccine development and testing. RV144 and its follow-on trials allowed researchers to discover of risk factors, provide targets for optimizing vaccine boosting, and form a foundation for three HIV vaccine candidates currently undergoing efficacy testing. A video featuring many prominent HIV researchers who were involved with RV144 was shown at the World AIDS Day event.

Also at the event, Lt. Gen (Ret.) Eric B. Schoomaker, 42nd surgeon general of the United States Army and former commanding general of the United States Army Medical Command, highlighted the military's earliest contributions to HIV research, which include the development of a disease staging system and promoting the finding that HIV can be transmitted heterosexually. The military's HIV research efforts were consolidated in 1986 with the establishment of MHRP.

MHRP's initial mission was to advance an HIV vaccine to protect service members and the global community from HIV, but has since expanded beyond vaccine development to include cure research and prevention and treatment services in Africa under the President's Emergency Plan for AIDS Relief or PEPFAR. Via PEPFAR initiatives, WRAIR provides life-saving antiretroviral therapy to more than 350,000 people living with HIV in sub-Saharan Africa, which contributes to global health security.

WRAIR supports PEPFAR activities within military and civilian communities in four countries where it conducts research (Nigeria, Tanzania, Uganda, and Kenya), which strengthens community trust and provides an ethical framework for clinical studies. The Department of Defense HIV/AIDS Prevention Program, led by the U.S. Navy, is responsible for assisting foreign military partners with the development and implementation of military-specific HIV/AIDS prevention and treatment programs in more than 55 countries around the globe, also supported by PEPFAR.

"Those countries that partner with us on PEPFAR have a 40-percent decrease in violence and a 40-increase in political stability," said WRAIR Commander Army Col. Deydre Teyhen. "So we say that soldier health is world health. But in fighting HIV/AIDS, WRAIR researchers are also working to advance world peace."

health.mil

Active Duty
INFECTIOUS DISEASES

Soldiers Learn to Live with Setbacks, Heartbreak of HIV-Positive Diagnosis

By Lesley Atkinson

A partner with a hidden past. A cheating husband. An unconscious encounter during an evening of heavy drinking.

At first glance, the unfortunate events that befell three active duty Soldiers at Fort Lee seem to have little in common. The outcome, however, is a different story — one in which the lies and errors in judgment thrusted them into the misunderstood and frequently biased world of a human immunodeficiency virus diagnosis.

In 2017, the Centers for Disease Control and Prevention reported 38,739 individuals in the U.S. were told they had HIV, adding to a population estimated to be in excess of 1.1 million. Each year, about 350 military members learn they are infected, according to military medical command statistics.

HIV weakens a person's immune system by destroying cells that combat disease and infection, according to the CDC website. There is no effective cure for it, but it can be controlled with proper medical care.

The Soldiers who agreed to tell their story asked to remain anonymous as a matter of privacy.

"Sam"

"Sam" — the pseudonym for one of those individuals — said he enlisted for the same reason a lot of people do; to travel and see the world. The Army did not disappoint. He deployed to far-flung places, and said he was genuinely enjoying his time in service.

Sam's love life also blossomed. He met a man who was previously married to another service member. They dated and eventually tied the knot.

Graphic courtesy of U.S. Army

Previously a stickler for health check-ups, Sam let his guard down as a newlywed. About a year into the relationship, he had a bout of illness that required hospitalization, but nobody suspected it was related to a sexually transmitted disease.

It was a group of concerned friends who learned his husband was HIV-Positive and notified public health, which ultimately resulted in an additional medical test that confirmed he had been infected.

"When I found out, my whole life fell apart," Sam recalled. "If my husband told me and was taking his medication, I wouldn't have become HIV-Positive. I could have taken pre-exposure prophylaxis. I'm still angry about it today. Why didn't he tell me?

"I hate to say it like this, but the diagnosis can make you feel like a piece of garbage on the street. Who is going to want you?" he questioned. "It hurt my self-esteem for a long time, and I had to learn to cope with it. It's one of those things you have to live with because it isn't going away. I take medication daily to suppress it, and I'm healthy otherwise. The chances of me giving it to somebody are slim to none. My status is undetectable."

Modern treatments for HIV include a prescription regimen called antiretroviral therapy, or ART for short. When taking it as prescribed, the viral load (amount of HIV in the blood) can become undetectable. CDC states if it stays at that level, the infected individual can live a long and healthy life and have effectively no risk of transmitting HIV to a disease-free partner through sex.

Sam has kept the details of his infection close-hold. Those in his confidential loop include a sister and a few close friends.

"I strongly feel this is a disease you need to educate yourself on before going out and carrying on lengthy discussions about it," Sam observed. "My decision has been to live it first. I know I'm going to be bombarded with questions just by mentioning it, and I don't want to be one of those people who are clueless about a serious topic like this. That's the way I look at the whole situation and the reason I really haven't talked about it much before now."

The realization that family and friends of his partner knew he was HIV-Positive but never brought it up is Sam's most-haunting thought. Equally disturbing is why the individual he fell in love with didn't share such information, but he has settled on the idea that he was probably scared what

the news would do to their relationship.

"Clearly, if my husband and I would have gotten tested earlier in the relationship, I might not be where I am today," Sam concluded.

"Mary"

Routine laboratory tests during her second pregnancy revealed "Mary's" HIV-Positive diagnosis. She was supported by members of her chain-of-command when clinic physicians broke the news. "My mind was screaming 'that is not possible, we need to do a retest!'" Mary recalled. "I was emphatic about the fact I don't sleep around, so how could I possibly get HIV?"

It was her husband who had been sleeping around with other men and women. "So, he contracted HIV and never told me," she interjected. "He didn't care about his health, so why would he care about mine?"

Mary believed her world was ending. In her mind, it was a death sentence both literally and figuratively from an Army career standpoint. Her unborn child also would inherit the disease. She has held on to the hope that it was all a misread diagnosis for the past two years, but that meager strand of optimism is dwindling.

"I have to deal with what it means to have HIV in the military," she acknowledged. "It changes everything. You can't deploy or go overseas, and I'm no longer eligible for warrant officer training. I'm left with far fewer options for advancing my career."

Typically, a service member diagnosed with a potentially debilitating disease like HIV is placed into a restricted status that includes no deployments, overseas assignments or immediate relocations stateside.

In reference to Army Directive 2018-22, which provides deployability guidance, an additional memo signed by acting Assistant Secretary of the Army for Manpower and Reserve Affairs Marshall M. Williams directs the categorization of HIV-Positive Soldiers as "deployable with limitations." This means they are retained in the Army unless they have another underlying legal, administrative or medical reason that makes them non-deployable.

"David"

Another Soldier, "David," can never forget the night he contracted the illness. After an argument with his long-distance boyfriend, he went out to a bar to blow off steam with friends.

"We were drinking, and I don't know what happened from there because I blacked out," David said. "The only thing I do remember is my friends leaving and me staying to talk to someone. The next day, I woke up inside my car with my pants down."

The embarrassing situation made him angry at his friends for leaving him at the bar. He wasn't sure if he had been raped, and the thought of that being a possibility brought additional shame because he had set himself up for it by drinking too much and passing out. He chose to keep the incident quiet, mostly because he was afraid he would lose his boyfriend. David went on with his life uncertain about what happened that night.

Until he started to feel sick and went to the hospital for an exam.

"I was telling them my symptoms because I had been Googling them, and everything was leading to HIV," David said. "I just didn't want to believe it."

A few weeks later, he received a call to report to his doctor, and was informed he would be accompanied by his supervisor and unit commander. The medical team broke the news that his tests came back positive.

"My commander didn't know what to say," David said. "I think it was the first time he had an encounter with an HIV diagnosis. I think he was surprised it was me, as well. I could see his disappointment, but at the same time, there was no indication he had lost any respect for me as a Soldier. I worked so hard for the company, and he knew I was a good, dedicated worker.

"He never asked me what happened either," the Solder continued, "but he was with me the whole way, accompanying me at my appointments. He was good to me and supportive, because only he and I knew, but I never opened up and told him I was gay."

David and his boyfriend have since broken up, and he thinks it is due to the HIV diagnosis. He isn't in a rush to get into a new relationship. The first order of business is to take care of himself.

"When I eat dinner, the pills I need to take sit next to me on the table," he said. "It took a year of counseling to get me where I am today. I still look online every day to see if, miraculously, a cure for HIV has been found. I am hoping one day they come up with a cure. In the meantime, I'll try to learn as much as I can to maintain my health."

The point of telling their stories, the trio agreed, is to promote understanding of the HIV epidemic and encourage healthy practices like getting regular checkups that include screening for sexually transmitted diseases, especially when entering an intimate relationship.

Testing is the only way for the people living with undiagnosed HIV to know their status and begin seeking treatment. The CDC estimates that more than 90 percent of all new infections could be prevented by proper testing and linking infected persons to care. HIV testing saves lives. It is one of the most powerful tools in the fight against the spread of this disease.

CDC recommends that everyone 13-to-64 years old get tested for HIV at least once as part of routine health care. Military personnel are required to get tested for HIV every two years as part of their physical health assessment.

As a general rule, people at high risk for HIV infection should get tested each year. Sexually active gay and bisexual men may benefit from getting tested more often, such as every 3-to-6 months.

army.mil

Active Duty
INFECTIOUS DISEASES

Sexually Transmitted Infections on the Rise in Military

By the Military Health System Communications Office

The rates of certain types of sexually transmitted infections, or STIs, are rising dramatically for both male and female service members, according to a recent report.

These STIs include chlamydia, gonorrhea, and syphilis. Data from the Centers for Disease Control and Prevention confirm similar surges for these three types of infections in the civilian population. The current high rates in the military pose challenges for more than 1.3 million DoD personnel, 84 percent of whom are men.

"We have a large number of males in the service, and the population we see normally is the 18 to 25 year olds. STI is most common in that age group," said Norma Jean Suarez, a nurse practitioner in preventive medicine at Brook Army Medical Center in San Antonio. She added that the men she sees often don't know how prevalent STIs are.

"STIs place a significant economic strain on the U.S. and military health care systems," said Maj. Dianne Frankel, an Air Force internal medicine physician and USU preventive medicine resident. In 2012, STIs in the Navy alone accounted for health care costs of $5.4 million.

"From a military standpoint, STIs can have a significant impact on individual readiness, which in turn impacts unit readiness, which then leads to a decrease in force health protection," said Frankel. She added that there can be serious health consequences for untreated STIs, including, down the road, cancer in the case of genital human papillomavirus, or HPV.

But why are STIs on the rise, and why now? "There appears to be an increase in high-risk behaviors among service members; that is, having sex without a condom or having more than one sexual partner," said Frankel, referring to the 2015 DoD Health-Related Behaviors Survey, known as HRBS. This report documented that one-fifth of respondents reported having more than one sexual partner in the past year, while one-third reported having sex with a new partner in the past year without use of a condom. These numbers have doubled since the last reported survey in 2011, said Frankel.

Suarez added another factor she's been seeing: Dating apps can promote random, anonymous encounters, and when infections result, that anonymity can make partners difficult to track down. Having anonymous sex is one of the CDC's list of behaviors that can increase risk of contracting an STI or HIV. Others include having vaginal, oral, or anal sex without a condom; having multiple sexual partners; or having sex while under the influence of drugs or alcohol, which can lower inhibitions and result in greater sexual risk-taking.

In general, STIs spread readily if precautions aren't taken, according to Col. Amy Costello, chief of preventive medicine at the Air Force Medical Support Agency. "Chlamydia and gonorrhea are quite common; they can be transmitted vaginally, anally, or through oral-sexual contact," she said. "Pretty much any time you have mucous membrane contact with an infected person, you have a chance of getting it." She added that syphilis is usually spread through open sores that can be non-painful, meaning an infected person might not know the infection is present.

Not all STIs are on the rise, according to the HRBS. Rates for genital herpes simplex decreased slightly between 2010 and 2018, and HPV dropped by almost 52 percent. She credited the widespread adoption of the HPV vaccine for the dramatic decline in the rate of infection.

HIV is another STI of concern. "A lot of service members don't understand that HIV exists on the active-duty military side," said Suarez. "Here in San Antonio alone, we manage 30+ HIV-positive active-duty soldiers." But rates of HIV are much lower in the military than in the U.S. population, Frankel said, adding that numbers for HIV from 2012 – 2017 "have been relatively stable."

Costello said that chlamydia, gonorrhea, and syphilis are bacterial infections that are treated with antibiotics. HPV, herpes, and HIV are viruses and more difficult to treat.

She said the most reliable way to avoid getting an STI is to stay away from oral, vaginal, and anal sex unless in a long-term, mutually monogamous relationship with a partner known to be uninfected. But, she added, "That's not a realistic plan for many of our younger service members who aren't yet married or in long-term monogamous relationships." Therefore, condom use is critical, she concluded, and any symptoms should lead to testing.

Efforts are ongoing to combat the rise of STIs through education. "STIs are preventable," said Frankel. "It's important for everyone to know how to protect themselves and their partners."

health.mil

Active Duty
INFECTIOUS DISEASES

Pandemic Conditions Pose an Increased Risk of Rabies Transmission

By Tom Adams

One of the many phenomenon's associated with the COVID-19 pandemic was the sight of wild animals encroaching on abandoned urban communities throughout the world. These images revealed how close the human to animal interaction really is and the dangerous potential of rabies transmission.

I spoke with an expert on this subject that is credited with co-founding the annual observance now known as "World Rabies Day," Mr. Peter Costa.

As a lifelong health educator, his insights have helped public health leaders throughout the world gain knowledge and preparedness skills, which have saved the lives of both civilian and military individuals globally.

"Public health authorities have taken steps to bring attention to this matter and even provided warnings through various types of news sources about safety precautions when re-entering certain areas, especially state and national parks," says Costa, "because these animals have basically been left alone for several months , many have simply overtaken areas where historically you would not expect them like urban environments.

Now with weather conditions warming and shelter-in-place restrictions easing, there is a greater chance of human to animal interaction. This brings along with it a higher risk of rabies exposures so we need to be extra vigilant in promoting rabies prevention measures in order to avoid these potentially deadly scenarios."

Mr. Costa reminded us that rabies is one of the world's oldest recorded diseases, and still considered one of the most deadly when not treated with proper and timely medical response following an exposure. This means that U.S. Military personnel serving both internationally and domestically are still posed with this serious threat, as they provide assistance to the public during times of national emergencies.

Rabies is one of the world's oldest recorded diseases, and still considered one of the most deadly when not treated with proper and timely medical response following an exposure.

Recently he worked with the Veterinary Medical Corps to educate military personnel in Afghanistan and other nations about this disease, and bring improvements in prevention measures and medical response following an exposure.

Soldiers were positioned on base perimeters to monitor for feral animal activity, because of the higher risks of infection to animals in those countries and the higher risks for them to transmit the rabies infection to humans. Instruction was given on ways to prevent animal to human contact whenever possible, but unfortunately exposures still happen as was the case several years ago when a soldier died after coming back from deployment overseas.

Despite all of the emerging infectious diseases that our hospitals are up against, including our U.S. Military, which is going into countries that are higher-risk for rabies infection as well as a variety of other serious health issues, rabies continues to be one of the deadliest diseases.

Of all the infectious diseases we hear about on the news such as Ebola, Zika, MERS, SARS, and recently a rise in Yellow Fever, rabies continues to have one of the highest case fatality rates of any disease and if left untreated, kills 99.9 percent of those who become infected," Costa said. International deployment also brought to mind another question I had for Mr. Costa, and that was the recent news about wet markets and the many exotic animals that are sold and handled there, such as bats, which are known to transmit Rabies. Ironically, wet markets have been reported as a possible link to the beginning of the COVID-19 pandemic, but could that same circumstance also bring an increased risk of Rabies?

"We could have an entire discussion about wet markets and the One Health implications of humans and animals interacting where exotic animals are sold for human consumption, and in some countries these animals are the preferred source of protein. In many nations where our troops are stationed, dogs are raised, butchered and eaten as a regular part of their diet, so when we look at consumption of these animals that could potentially be infectious with rabies virus the concern is not necessarily in eating the meat but rather in the preparation.

Studies have proven that meat from rabid animals can safely be consumed if

handled and cooked thoroughly, avoiding contact with the areas where the virus lives such as in the saliva or brain/nervous system tissue. Similarly, although drinking milk from a rabid cow is not advised, milk that has been properly heat pasteurized presents no risk for rabies virus transmission."

Another issue that has been brought up in the wake of this pandemic is the need for stockpiles of personal protective equipment, disinfectants, and medical devices such as ventilators and patient monitoring. And while a vaccine for coronavirus does not currently exist, vaccines for other potential pandemics certainly need to be stockpiled. And unlike PPE and devices that don't have an expiration date, vaccines not only do expire but many of them require refrigerated storage, making readiness even more challenging. How does your Kedrab vaccine offer an advantage to this?

"Stability is crucial in the environments Military preparedness faces," Costa said, "particularly in deployment to areas where temperature control is not easily available, so having an HRIG that you can store outside the refrigerator for up to 30 days provides a potential advantage for overall readiness. And now with storm season on the way and the likelihood for natural disasters where Military and VA assistance is required, these elevated risks of human to animal exposures need to be considered. Currently in the VA we've seen that room temperature stability serves as a loss prevention tool. In many cases, hospitals prepare for administering rabies post prophylaxis but have to throw out what they've prepared because patients wind up being transported elsewhere."

Scenarios like this happens all the time, maybe its a group of boy scouts camping that find a bat in their tent and its unclear if any of them were bitten, so the entire group needs to be transported to the hospital and preparations need to be made before their arrival then they don't wind up going to that facility.

Here's one example where Kedrab does not need to be discarded but can remain on the shelf for 30 days until the next patient needing rabies post-exposure prophylaxis comes in. Another example is, what happens if the refrigerator goes down or even freezes all of the medications? Not all hospital refrigerators are backed up with temperature monitoring or for a power failure or have additional refrigerators if one breaks. Even if the refrigerator doesn't break but just goes above or below the temperature they need to be, this results in a loss of product and a loss of preparedness.

Another scenario that hospitals frequently face is delay in putting product into temperature controlled storage. The product needs to be discarded resulting in a loss for the hospital. Sometimes they can get a credit for the cost of replacement, but not always, so the cost savings of medicines with more flexible temperature excursion ranges are definitely realized when considering these loss prevention scenarios that can and do often occur.

Kedrion Biopharma is now offering the industry's first and only product replacement program for Rabies immune globulin. This means that if your hospital purchases Kedrab and it expires, or is damaged from natural disaster, or even goes through temperature excursion such as the case were it was taken out and not used for 30 days, they will replace it.

Education from public health officials to the public, as well as military personnel has always been an essential component of reducing the risk of Rabies infection, and now more than ever the awareness needs to be updated to include educating medical personnel about preparedness and loss prevention.

Peter Costa is a public health educator and epidemiologist by training. He received a master's degree in public health and went on to become a master certified health education specialist. He has been recognized for his contributions to veterinary public health and human health with an honorary diploma from the American Veterinary Epidemiological Society.

In 2006, the U.S. CDC conducted a national search looking for a public health educator to help spearhead their global rabies education campaign. They had done a national search through the state health departments, where at the time Costa was working at the North Carolina Division of Public Health and their State Public Health Veterinarian mentioned it to him.

Costa applied for the position and was selected to help a non-profit group called the Global Alliance for Rabies Control launch a new program that is now known across the globe as World Rabies Day. This annual event is recognized by the United Nations and during 2007-2012 Costa directed all of the global awareness, education and communication efforts around Rabies prevention in over 150 countries. He dealt with religious issues, cultural barriers, and understanding why certain people are dying from rabies in different areas, and how to work with the Ministries of Health and Agriculture to help prevent the disease.

He helped to clear up misunderstandings and myths about Rabies and conceptualized novel programs like the Rabies Educator Certificate to encourage more individuals to pursue specializing in rabies education. Costa continues to stay active in the rabies prevention community and currently serves on the International Steering Committee for Rabies in the Americas, and works with the Public Library of Science (PLOS) Neglected Tropical Diseases journal to review and edit publications on Rabies.

And while he now devotes much of his time to Kedrion Biopharma, the company that markets KEDRAB (Rabies Immune Globulin [Human]), he remains active in helping to fill the public health gap that still exists in rabies prevention.

Indicated for post-exposure prophylaxis (PEP) of rabies infection

KEDRAB. RELIABLE COVERAGE FOR EVERY RABIES EXPOSURE

Ready-to-use human rabies immune globulin (HRIG) solution[1]

- **Dependability in the 150 IU/mL potency you know and trust[2]**
- **May be stored at room temperature not exceeding 25°C (77°F) for up to one month. Use within one month; do not return to refrigeration[1]**
- **No need for dilution with dextrose[1]**
  - **May help reduce the potential for errors caused by the need to prepare an admixture[3]**

2-mL vial/300 IU
NDC 76125-150-02

10-mL vial/1500 IU
NDC 76125-150-10

INDICATIONS AND USAGE

KEDRAB® (Rabies Immune Globulin [Human]) is a human rabies immunoglobulin (HRIG) indicated for passive, transient post-exposure prophylaxis (PEP) of rabies infection, when given immediately after contact with a rabid or possibly rabid animal. KEDRAB should be administered concurrently with a full course of rabies vaccine.

- Additional doses of KEDRAB should not be administered once vaccine treatment has been initiated, since this may interfere with the immune response to the rabies vaccine.
- KEDRAB should not be administered to patients with a history of a complete pre-exposure or post-exposure vaccination regimen and confirmed adequate rabies antibody titer.

IMPORTANT SAFETY INFORMATION

- Patients who can document previous complete rabies pre-exposure prophylaxis or complete post-exposure prophylaxis should only receive a booster rabies vaccine without KEDRAB, because KEDRAB may interfere with the anamnestic response to the vaccine (ACIP).

KEDRAB®
Rabies Immune Globulin (Human)

Visit KEDRAB.com or call 1-855-353-7466 to order KEDRAB today.

IMPORTANT SAFETY INFORMATION (CONTINUED)

- KEDRAB should not be injected into a blood vessel because of the risk of severe allergic or hypersensitivity reactions, including anaphylactic shock. KEDRAB can induce a fall in blood pressure associated with an anaphylactic reaction, even in patients who tolerated previous treatment with human immunoglobulin. KEDRAB should be discontinued immediately if there is an allergic or anaphylactic type reaction. In case of shock, standard medical treatment should be implemented. Epinephrine should be available.
- Patients with a history of prior systemic allergic reactions following administration of human immune globulin preparations should be monitored for hypersensitivity. KEDRAB contains a small quantity of IgA. Patients who are deficient in IgA have the potential to develop IgA antibodies and may have anaphylactic reactions following administration of blood components containing IgA. The healthcare provider should assess the risks of this reaction against the benefits of administering KEDRAB.
- Patients at increased risk of thrombosis or thrombotic complications should be monitored for at least 24 hours after KEDRAB administration.
- Hemolysis may occur in patients receiving immune globulin products, particularly those who are determined to be at increased risk. Clinical symptoms and signs of hemolysis include fever, chills and dark urine. If any of these occur, appropriate laboratory testing should be performed and medical therapy administered as indicated.
- KEDRAB administration may interfere with the development of an immune response to live attenuated virus vaccines. After KEDRAB administration, immunization with measles vaccine should be avoided within 4 months; other live attenuated virus vaccines avoided within 3 months.
- A transient rise of the various passively transferred antibodies in the patient's blood may result in misleading positive results of serologic tests after KEDRAB administration. Passive transmission of antibodies to erythrocyte antigens may interfere with serologic tests for red cell antibodies such as the antiglobulin test (Coombs' test).
- KEDRAB is derived from human plasma; therefore, the potential exists that KEDRAB administration may transmit infectious agents such as viruses, the variant Creutzfeldt-Jakob disease (vCJD) agent, and theoretically, the Creutzfeldt-Jakob disease (CJD) agent. There is also the possibility that unknown infectious agents may be present in KEDRAB.
- In clinical trials, the most common adverse reactions in subjects treated with KEDRAB were injection site pain (33%), headache (15%), muscle pain (9%), and upper respiratory tract infection (9%).

Please see Brief Summary of Prescribing Information on the next page.

KEDRAB Dose Calculator

Access the online calculator: 1. Scan the QR code with the camera on your phone.
2. Open the link to access or visit **KEDRABDoseCalculator.com**.

References: 1. KEDRAB [package insert]. Fort Lee, NJ: Kedrion Biopharma Inc.; 2017. **2.** Scott D. Scientific basis for approval of human rabies immune globulin in combination with rabies vaccine. Presented at: Developing Rabies Monoclonal Antibody Products as a Component of Rabies Post-Exposure Prophylaxis; July 17, 2017; Silver Spring, MD. **3.** Billsten-Leber M, Carrillo CJD, Cassano AT, Moline K, Robertson JJ. ASHP Guidelines on Preventing Medication Errors in Hospitals. *Am J Health Syst Pharm.* 2018; 75:1493-1517. doi: 10.2146/ajhp170811.

KEDRION BIOPHARMA

KEDRAB Rabies Immune Globulin (Human)

BRIEF SUMMARY OF
FULL PRESCRIBING INFORMATION

INDICATIONS AND USAGE

KEDRAB is a human rabies immunoglobulin (HRIG) indicated for passive, transient postexposure prophylaxis (PEP) of rabies infection, when given immediately after contact with a rabid or possibly rabid animal. KEDRAB should be administered concurrently with a full course of rabies vaccine. Do not administer additional (repeat) doses of KEDRAB once vaccine treatment has been initiated, since this may interfere with the immune response to the rabies vaccine. Do not administer KEDRAB to patients with a history of a complete pre-exposure or post-exposure vaccination regimen and confirmed adequate rabies antibody titer.

WARNINGS AND PRECAUTIONS

Previous Rabies Vaccination: Patients who can document previous complete rabies pre-exposure prophylaxis or complete post-exposure prophylaxis should only receive a booster rabies vaccine without KEDRAB, because KEDRAB may interfere with the anamnestic response to the vaccine (ACIP). **Anaphylactic Shock:** KEDRAB should not be injected into a blood vessel because of the risk of severe allergic or hypersensitivity reactions, including anaphylactic shock. KEDRAB can induce a fall in blood pressure associated with an anaphylactic reaction, even in patients who tolerated previous treatment with human immunoglobulin. Discontinue KEDRAB injection immediately if there is an allergic or anaphylactic type reaction. In case of shock, implement standard medical treatment. Epinephrine should be available for treatment of acute anaphylactic symptoms. **Hypersensitivity:** Patients with a history of prior systemic allergic reactions following administration of human immune globulin preparations should be monitored for hypersensitivity. KEDRAB contains a small quantity of IgA. Patients who are deficient in IgA have the potential to develop IgA antibodies and may have anaphylactic reactions following administration of blood components containing IgA. The healthcare provider should assess the risks of this reaction against the benefits of administering KEDRAB. **Thrombosis:** Patients at increased risk of thrombosis or thrombotic complications should be monitored for at least 24 hours after KEDRAB administration. Patients at increased risk of thrombosis include patients with acquired or hereditary hypercoagulable states, prolonged immobilization, in-dwelling vascular catheters, advanced age, estrogen use, a history of venous or arterial thrombosis, cardiovascular risk factors (including history of atherosclerosis and/or impaired cardiac output), and hyperviscosity syndromes (including cryoglobulinemias, fasting chylomicronemia and/or high triglyceride levels, and monoclonal gammopathies). Consider measurement of baseline blood viscosity in patients at risk for hyperviscosity. **Hemolysis:** Hemolysis may occur in patients receiving immune globulin products, particularly those who are determined to be at increased risk. Patients at increased risk include those with non-O blood group types, those with underlying associated inflammatory conditions, and those receiving high cumulative doses of immune globulins over the course of several days. Clinical symptoms and signs of hemolysis include fever, chills and dark urine. If any of these occur, perform appropriate laboratory testing and administer medical therapy as indicated. **Live Attenuated Virus Vaccines:** KEDRAB administration may interfere with the development of an immune response to live attenuated virus vaccines. Avoid immunization with measles vaccine within 4 months after KEDRAB administration. Avoid immunization with other live attenuated virus vaccines within 3 months after KEDRAB administration. **Interference with Serologic Testing:** A transient rise of the various passively transferred antibodies in the patient's blood may result in misleading positive results of serologic tests after KEDRAB administration. Passive transmission of antibodies to erythrocyte antigens, e.g., A, B, and D, may interfere with serologic tests for red cell antibodies such as the antiglobulin test (Coombs' test). **Transmissible Infectious Agents:** KEDRAB is derived from human plasma; therefore, the potential exists that KEDRAB administration may transmit infectious agents such as viruses, the variant Creutzfeldt-Jakob disease (vCJD) agent, and theoretically, the Creutzfeldt-Jakob disease (CJD) agent. The risk of transmitting an infectious agent has been minimized by: Screening plasma donors for prior exposure to certain viruses; Testing for certain viral infections; Inactivating and removing certain viruses during the manufacturing process [see *Description* in the Full Prescribing Information]. Despite these measures, KEDRAB administration can still potentially transmit infectious diseases. There is also the possibility that unknown infectious agents may be present in KEDRAB. Any infection considered to have possibly been transmitted by this product should be reported by the physician or other healthcare provider to Kedrion Biopharma Inc. Customer Service (1-855-353-7466) or FDA at 1-800-FDA-1088.

ADVERSE REACTIONS

Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in clinical trials of a drug cannot be directly compared to rates of adverse reactions in clinical trials of another drug and may not reflect the rates observed in clinical practice. KEDRAB was evaluated in three single-center, controlled clinical trials. Subjects in the clinical studies of KEDRAB were healthy adults, primarily white and ranged in age from 18 to 72 years. A total of 160 subjects were treated in these three studies, including 91 subjects who received single intramuscular doses of KEDRAB (20 IU/kg) with or without rabies vaccine. Table 1 summarizes adverse events (assessed by the investigator as related or unrelated to study treatment) occurring in >3% of subjects in the clinical trials of KEDRAB. The most frequent adverse events in the KEDRAB group (>6%) were injection site pain, headache, muscle pain, and upper respiratory tract infection (Table 1). **Table 1: Adverse Events Occurring in >3% of Subjects in All Studies Combined** (91 subjects receiving KEDRAB vs. 84 subjects receiving Comparator HRIG vs. 8 subjects receiving Saline Placebo + Vaccine). Data are presented as number of subjects (% of subjects). Injection site pain, 30 (33), 26 (31), 2 (25); Headache, 14 (15), 11 (13), 3 (38); Muscle pain, 8 (9), 6 (7), 0; Upper respiratory tract infection, 8 (9), 8 (10), 0; Joint pain, 5 (6), 0, 1 (13); Dizziness, 5 (6), 3 (4), 0; Fatigue, 5 (6), 2 (2), 0; Abdominal pain, 4 (4), 1 (1), 0; Blood in urine, 4 (4), 2 (2), 0; Nausea, 4 (4), 3 (4), 0; Feeling faint, 4 (4), 1 (1), 0; Bruising, 3 (3), 1 (1), 0; Sunburn, 3 (3), 0, 0; White blood cells in urine, 3 (3), 4 (5), 0. Less common adverse events were joint pain, dizziness, fatigue, abdominal pain, blood in urine, nausea, feeling faint, bruising, sunburn, and white blood cells in urine.

DRUG INTERACTIONS

Do not administer additional (repeat) doses of KEDRAB once vaccination has been initiated, since additional doses of KEDRAB may interfere with the immune response to the vaccine. Do not administer KEDRAB into the same anatomical site(s) as rabies vaccine. KEDRAB contains other antibodies that may interfere with the response to live vaccines such as measles, mumps, polio or rubella. Avoid immunization with live virus vaccines within 3 months after KEDRAB administration, or in the case of measles vaccine, within 4 months after KEDRAB administration [see *Warnings and Precautions / Live Attenuated Virus Vaccines*].

USE IN SPECIFIC POPULATIONS

Pregnancy: *Risk Summary*. KEDRAB has not been studied in pregnant women. Therefore, the risk of major birth defects and miscarriage in pregnant women who are exposed to KEDRAB is unknown. Animal developmental or reproduction toxicity studies have not been conducted with KEDRAB. It is not known whether KEDRAB can cause harm to the fetus when administered to a pregnant woman or whether KEDRAB can affect reproductive capacity. In the U.S. general population, the estimated background of major birth defects occurs in 2-4% of the general population and miscarriage occurs in 15-20% of clinically recognized pregnancies. **Lactation:** *Risk Summary*. There is no information regarding the presence of KEDRAB in human milk, the effects on the breastfed infant, or the effects on milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for KEDRAB and any potential adverse effects on the breastfed infant from KEDRAB or from the underlying maternal condition. **Pediatric Use:** The safety and effectiveness of KEDRAB in the pediatric population have not been established. **Geriatric Use:** Clinical studies of KEDRAB did not include sufficient numbers of subjects aged 65 years and over to determine whether they respond differently from younger subjects. Clinical experience with HRIG products has not identified differences in effectiveness between elderly and younger patients (ACIP).

NONCLINICAL TOXICOLOGY

Animal Toxicology and/or Pharmacology: Intramuscular administration of a single dose of KEDRAB to rats at 60 and 120 IU/kg (3-fold and 6-fold higher than the recommended human dose of 20 IU/kg), did not result in any signs of toxicity.

For a copy of the Full Prescribing Information for KEDRAB, please visit www.KEDRAB.com.

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Active Duty
LABORATORY

Medical Lab Professionals Week a Testament to the Testers at NMRTC Bremerton

By Douglas Stutz, Naval Hospital Bremerton

When an entire auditorium of laboratory staff members were asked who participated in recent weekend support to stop the spread of COVID-19 related to operational fleet readiness, every one present raised a hand.

Such is the daily new norm encapsulated during Medical Laboratory Professionals Week. The theme 'laboratory professionals get results' has been apt for Naval Hospital Bremerton (NHB)/ Navy Medicine Readiness Training Command (NMRTC) Bremerton Laboratory Department during the novel coronavirus pandemic.

Screening, testing, and processing orders for COVID-19 are a major emphasis for the Department of Defense, and NHB/ NMRTC Bremerton's Laboratory Department are providing crucial results and have a central role in ensuring service members remain healthy and ready.

"Our Laboratory team is the best in Navy Medicine. They have been out front on the COVID 19 response, and they have repeatedly surged to meet the expanding mission requirements, while maintaining positive attitudes. Without question, the exceptional efforts and behind-the-scenes work of our team in the laboratory is essential to the safe, high quality care we strive to deliver," said Capt. Shannon J. Johnson, NHB/ NMRTC Bremerton commanding officer.

"They are a cohesive team of unsung heroes in the battle against COVID-19. They have been front and center in our overall effort, becoming experts in all aspects of COVID-19 screening and testing. We are grateful for their commitment to staying current with the research, and guidance from the Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA)," added Johnson.

Johnson acknowledged that Cmdr. Todd Tetreault, Laboratory Department head, has provided an invaluable role by reaching out and developing strong, collaborative partnerships with other hospital laboratory officers and keeping Navy Medicine and command leadership apprised of the most up to date, state of the art practices.

"Cmdr. Tetreault leads an incredibly strong team, and his Laboratory staff members have been instrumental in our critical mission to support our deploying forces. I thank each for their commitment, competence and long hours worked without complaint," Johnson said.

Behind the scenes but not the times… Screening, testing, and processing orders for COVID -19 are a major emphasis for the Department of Defense, and NHB/NMRTC Bremerton's Laboratory Department staff members – such as Hospitalman Maggie Strah (above) - are providing crucial support and have a central role in ensuring service members remain healthy and ready. April 19-25, 2020 was designated as Medical Laboratory Professionals Week, with the theme, 'laboratory professionals get results,' which is an apt description of their daily focus to help stop the spread of COVID-19. *Official Navy photo by Douglas H Stutz, NHB/ NMRTC Bremerton public affairs officer*

Tetreault clarified that his role leading the command's lab has been 'just administrative in nature.'

"It's really our lab technicians — our enlisted Sailors — who are the reason why we are able to do what we do to support the fleet's surface, subsurface and shore components. Our hospital corpsmen have taken the lead, handled the responsibility, worked long hours and provided expertise all along the way," commented Tetreault.

One such example had the NHB/NMRTC Bremerton Laboratory team, in collaboration with other staff members, come together as a group and process over 3,000 COVID-19 orders in support of a national security mission.

Screening, testing, and processing orders for COVID-19 are a major emphasis for the Department of Defense, and NHB/NMRTC Bremerton's Laboratory Department are providing crucial results and have a central role in ensuring service members remain healthy and ready.

"All our lab staff have been essential and flexible. They demonstrated tremendous agility, a strong sense of mission conviction, and a 'failure is not an option' mindset. Everyone has been competent and ready to serve, with a great attitude," said Johnson.

The Laboratory team for years has been regarded as behind the scenes professionals essential and central to the military health system supporting almost every aspect in healthcare delivery. The Lab collects, processes, and/or ships approximately 750,000 tests each year in support of operational readiness ensuring a ready medical force and a medically ready Fleet and Marine force. The Lab also supports beneficiary healthcare, including seasonal influenza vaccination needs, the Armed Service Blood Program donor operations, and Military Health System referrals.

The NHB/NMRTC Bremerton staff are multi-disciplined and includes such specialties as administration support, phlebotomists, medical technicians, medical technologists, cytotechnologists, histology technicians, and pathologists

"NHB's Lab is the hub for all naval laboratory work in the Pacific Northwest! The clinical portion of the lab conducts anatomic and clinical pathology work from our operating rooms, Labor and Delivery Center, Multi-Service Ward, Outpatient Clinics, Urgent Care Clinic, and Dental," explained Tetreault.

"NHB's Lab also receives work from Naval Base Kitsap Bangor, Puget Sound Naval Shipyard Occupational Health Clinic, the Naval Shipyard Everett Clinic, and the Naval Health Clinic in Oak Harbor. We also work closely with our partners at Madigan Army Medical Center."

With April 19-25, 2020 designated as Medical Laboratory Professionals Week, the lab staff were able to vote amongst themselves and recognize their peers on outstanding services they provide.

Mr. Tomio Oda was selected as 'Technician of the Year;' Hospitalman Connor Homrighause was honored as 'Best of Troubleshooting;' Hospitalman Oswaldo Encarnacionvilla was chosen as 'Team Player of the Year;' Hospitalman Stephanie Fernandez was picked for 'Outstanding Customer Service;" and Hospital Corpsman 2nd Class Alexis Delapaz was tabbed as 'Mentor of the Year.'

"This last award was presented for dedication to the Navy's Mission, their out of the box thinking, and flexibility, and was presented by all (lab) officers to Hospital Corpsman 3rd Class Sara Rockhold for 'COVID-19 Swab Exercise Organizer,'" noted Tetreault.

Rockhold was instrumental in coordinating manpower, logistics, collecting and shipping details for the lab's fleet support.

The Lab is also part of the Armed Services Blood Bank Center — Pacific Northwest. Last year, six blood drives were conducted with 191 units collected.

"We actively supports regional donation of blood products, prepare and ensure the compatibility of blood products — Red Blood Cells, Cryoprecipitate, Fresh Frozen Plasma, and platelets — used in our operating rooms and labor and delivery," said Tetreault.

Those willing to donate can make an appointment at; militarydonor.com or calling 253-968-1850. The Blood Bank is currently operating with social distancing guidelines at Madigan Army Medical Center, with extended hours Monday through Friday, 8 a.m. to 6 p.m.

Currently due to the ongoing public health challenges posed by COVID-19, Lab hours have been modified for beneficiaries, open Monday through Friday from 9 a.m. to 5:30 p.m.

"In recognition of the 45th Medical Laboratory Professionals Week, I would like to express my gratitude for the collective character, competence and compassion of our Laboratory team. They are tested and proven, and will no doubt continue to adapt and overcome in these challenging times," Johnson shared.

NHB/NMRTC Bremerton Laboratory has also been fully accredited by the College of American Pathologists (CAP), American Society for Clinical Pathology (ASCP) and American Association of Blood Banks (AABB). It is also licensed and the Food and Drug Administration (FDA).

Defense Visual Information Distribution Europe

Active Duty
MENTAL HEALTH

Tyndall Airman Wins AF Mental Health NCO of the Year

By Senior Airman Stefan Alvarez, 325th Fighter Wing Public Affairs

Mental health plays a significant role in the modern day service member's readiness. The 325th Operational Medical Readiness Squadron's mental health clinic ensures that Tyndall's warfighters are mentally fit and ready to execute the mission.

Airmen of all ranks and walks of life can see metal health professionals without fear of repercussions or impacts on their professional careers. The clinic is responsible for providing world-class care to patients seeking their help.

One of the clinic's staff has been selected as the Air Force Mental Health Noncommissioned Officer of the Year for his hard work, dedication to his profession, and selfless service, all while being in charge of clinic operations.

"I oversee our day-to-day operation and make sure our patients are being seen and getting the care they need," said Tech. Sgt. James Sigler, 325th OMRS mental health flight chief. "On top of offering counseling and face-to-face sessions, we handle referrals for higher levels of care including intensive outpatient and inpatient units and then tracking those patients to make sure they're getting the treatment they need."

Sigler enlisted in the Air Force with hopes of immersing himself in the maintenance world, but when he found out he was picked for mental health, he found new meaning in the words "excellence in all we do."

"When I was young I wanted to be on the operational side with planes and all that fun stuff," Sigler said. "I had no idea what mental health was or what they did but I wanted to be the best I could at my job. It's been a constant learning experience and a process of working my way up but I absolutely love it."

Sigler and his team helped patients overcome personal struggles after Hurricane Michael, despite having to conquer challenges of their own.

"Hurricane Michael destroyed our building and most of our flight left because of the storm," said Sigler. "My daughter was born 10 days after the storm. A lot of us had to worry about salvaging our homes and providing for our families while trying to see as many patients as we could."

U.S. Air Force Tech. Sgt. James Sigler, 325th Operational Medical Readiness Squadron mental health flight chief, talks with a simulated patient at Tyndall Air Force Base, Florida, March 4, 2020. Sigler is in charge of the mental health clinic's daily operations and makes sure the patients get the care they need. *U.S. Air Force photo by Senior Airman Stefan Alvarez*

Sigler saw the silver lining, despite the situation, and capitalized on it to shape the mental health clinic into the organization it is today.

"I was put in a role where I had a blank slate to start with," Sigler said. "I was able to rewrite and redo things so we could operate the way we should have been operating. I saw room for a lot of improvements for my team and I made sure we could get to where we needed to be to succeed."

Sigler was humbled by his nomination and selection for the award. "It feels very rewarding because of all the work that's been done up until this point," Sigler said. "It paid off and I couldn't be more proud of my team. I'm extremely thankful for everyone around me getting me this far because I know there were other people who were also deserving of this award."

Tyndall's mental health clinic continues to provide as much support to the 325th Fighter Wing as possible. Their high level of professionalism and patient care does not go unnoticed.

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Active Duty
MENTAL HEALTH

Military Chaplains Emphasize Spiritual Health During COVID-19 Pandemic

By the Military Health System Communications Office

In a time when many are dealing with anxiety and fear over a new disease with no cure available, comfort can come in the form of spiritual wellness. Spiritual health is a domain of Total Force Fitness that focuses on beliefs and practices. The goal is to build connectedness through hope, meaning, and purpose. Spiritual caregivers like the chaplains of the military help people nurture that connectedness. However, during the COVID-19 pandemic when physical proximity is limited, chaplains are getting creative with how they offer spiritual support.

"There's so much from our spiritual traditions that assume an in-person connection," said Pastor (Cmdr.) David Jeltema, a Navy chaplain at the Walter Reed National Military Medical Center in Bethesda, Maryland. "To suddenly be in an environment where the way we operate has changed so radically and realize that the way to care for patients is actually to maintain a distance is a real shift in how we deliver care."

New rules at WRNMMC and other hospitals in the Military Health System severely limit who can come in contact with patients, whether the patient has COVID-19 or not. Chaplains and family members of patients communicate from doorways and through phone calls instead of offering comfort from inside a hospital room. According to Jeltema, patients, family members, and even hospital staff are feeling the effects of the lack in closeness.

"This is a very isolating disease that we are dealing with," Jeltema said. "When people are not able to experience things like acts of hospitality, I think they find that there's a void in their lives."

WRNMMC's chaplains have found new ways to fill that void and offer spiritual support without direct proximity. Chaplains are taking a more proactive approach to contacting family members of patients and meeting their spiritual needs. WRNMMC's chaplains also have an official Walter Reed Pastoral Care Facebook page as an initiative that has opened connection between community members, staff, and outpatients. The page extends the voluntary broadcasting of daily and weekly services to hospital in-patients. Virtual communication for both patients and family members has helped the chaplains reach more people for spiritual care and stay efficient.

"As spiritual caregivers, we are tasked to find creative ways to nurture," said Navy Chaplain (Lt.) Nahum Melendez, who also works at WRNMMC. "We are hopeful that in the absence of physical touch there can be a different, transcendental touching of the spirit instead."

These creative ways to nurture spiritual health extend beyond organized vocations and religions. Both Jeltema and Melendez emphasize that, at its core, spiritual health centers on what gives people meaning.

"I think that spiritual health is really about having a good sense of identity of who we are and what our purpose is in life," Jeltema said, "and what is important is what we value."

These values can be structured through religious practices. But, spirituality can also take the form of time spent with family and friends. Activities like yoga and meditation are rising in popularity in hospitals. Chaplains like Melendez use hand held labyrinth exercises as an innovative practice during the time of the COVID-19 pandemic. Melendez guides patients to walk these symbolic paths, meandering yet purposeful, and use them as tools to develop the spiritual life while isolated from community support.

Jeltema is hopeful that people battling fear during the pandemic will explore their spiritual health to ease that fear. Whether through religion or purposeful practice, Jeltema finds that connecting to the world is important for overall health. Nearly every hospital throughout the MHS has one or more chaplains to provide spiritual support to patients and their families. As the COVID-19 pandemic continues in the world, beneficiaries and families are encouraged to reach out to these spiritual caregivers to find a path that works for them.

"It's a real test of our spiritual health, when we look at what we do with fear," Jeltema said. "This is a really good time to look outside of oneself to see how that fear can be overcome. There's a lot of wisdom from a lot of different spiritual traditions that I think one can find in a time like this."

Melendez agrees, highlighting that community is a great place to find spirituality. While gathering in-person is not on the table, checking in is a way for people to make sure that their loved ones stay spiritually healthy.

"We can all help one another to reach that consequential state of mind and soul," Melendez said, "by simply asking what it is that gives you meaning and purpose in life, and encouraging each other to do just that."

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Active Duty
NEUROLOGY

American Red Cross Volunteer Increases Medical Capability at Traumatic Brain Injury Clinic

By Marcy Sanchez

The call to service resonates with many military families. Although never having sworn an oath to defend the constitution, Cheyney Lindgren's contributions is an answer to the call for Service Members across Europe.

A family nurse practitioner by trade, Lindgren has volunteered her medical services at the Traumatic Brain Injury Clinic at Landstuhl Regional Medical Center for the past two years.

After moving to Europe with her husband, also a civilian, Lindgren was initially looking to volunteer at the clinic through the American Red Cross at LRMC but was offered a contract position as one of the clinic's medical staff. Six months later, after her contract expired, her experiences with Service Members led to continuing her work at the clinic as an unpaid volunteer and hasn't stopped since.

Cheney Lindgren is pictured at the Landstuhl Regional Medical Center Traumatic Brain Injury Clinic, where she was previously employed and has volunteered for the past two years as part of the American Red Cross Program at LRMC. *Photo courtesy of Marcy Sanchez*

While her experience with TBI was nonexistent prior to serving at LRMC, Lindgren states she's grateful to be in a position where patients can share their story with her.

"It's really impactful, and it's gratifying to try to help in some way," said Lindgren. "The rehab is really beneficial, they all work together to help patients with traumatic brain injuries and it's so important for this population."

At the clinic, Lindgren assists with screening patients, providing some treatment and determining the need for referral. Following her contracted position, Lindgren was offered a position at the clinic but said she prefers to volunteer as it helps keep her medical credentials up to date and allows her to care for her three children.

According to Lindgren, serving the military population has been a wonderful opportunity for her and her husband. "It's been really eye-opening and then we're just really grateful for those that serve," said Lindgren.

For staff members of LRMC's TBI Clinic, Lindgren's expertise brings much needed relief during a transition period.

"It was the biggest help in the world. She's a very compassionate, caring provider here," said Carrie Crespo, a licensed practical nurse at the TBI Clinic. "She is very thorough with our patients, any patients that see her would get full complete care and were in good hands."

The LRMC TBI & Rehabilitation team is comprised of an interdisciplinary group of health care providers including neurologists, physical medicine and rehabilitation physicians, primary care practitioners, nurse case managers, TBI nurse educator and support staff. Lindgren's role at the clinic helps determine the need for rehabilitation through the study of exposure, severity, and occurrence of patient TBI symptoms.

"Patients really benefit from the care and are grateful for it," said Lindgren. "We get different kinds of patients, people that have experienced a recent TBI or patients who have had several over their career."

Lindgren plans to continue giving back to those who serve by volunteering at the clinic to serve them.

"It's definitely a team approach but if I can help them with their headaches or their sleep or in any way, it's so wonderful to hear," said Lindgren. "Being able to actually be with patients have an impact on their recovery in some little way, I think that's really cool."

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Active Duty
NEUROLOGY

Air Force Studies Fatigue and Sleep to Enhance Readiness

By Shireen Bedi, Air Force Surgeon General Public Affairs

The Air Force is studying sleep habits among Airmen to find ways to improve performance and ensure their readiness to support the mission.

Researchers with the Air Force Research Laboratory's 711th Human Performance Wing, Wright-Patterson Air Force Base in Ohio, are looking for ways to better equip Airmen and their leadership with crucial data to ensure that Airmen are getting the necessary rest and to maximize mission execution.

A team of human performance experts is looking at sleep and fatigue from several perspectives. They are tracking sleep habits in pilots and other operators, while also evaluating sleep-monitoring technology to ensure its accuracy and ability to work in an operational setting.

"It's a multi-pronged approach to studying sleep and fatigue," said Dr. Glenn Gunzelmann, training core technical competency lead for the Airman Systems Directorate in the 711th HPW. "Providing Airmen with information on their sleep patterns and history helps Airmen understand how sleep effects their operational effectiveness. Giving leadership this data also helps inform policy and how to account for sleep needs in their planning.""

Gunzelmann, along with Lt. Col. Dara Regn, Internal Medicine Branch chief for the U.S. Air Force School of Aerospace Medicine in the 711th HPW, participate in a NATO aircrew fatigue management working group. Regn leads the working group, which also includes Army and Navy researchers. The goal is to pool their expertise and research to address common issues and challenges.
"Our current operations cross over multiple time zones, resulting in circadian rhythm issues, sleep deprivation or insufficient sleep," said Regn. "As partner nations we all deal with similar challenges like increased mission tempo, long-range missions and pilot shortages. We are working together to optimize our pilots and bring back the importance of sleep."

This NATO working group is currently building a "sleep toolbox" for aviators and those who take care of them. The toolbox helps them identify and mitigate sub-optimal sleep habits.

According to Regn, the sleep toolbox will have educational resources on fatigue risk assessment with ways to mitigate this. It will also have information on insomnia, including cognitive behavioral therapy for insomnia and other sleep disorders.

"These resources will be made available through an open source NATO website and secure offline application," said Regn. "The application allows users to optimize their sleep and is a resource for reliable advice on improving sleep quality in operational settings."

Similarly, the 711th HPW is also developing an application that can track current and future levels of effectiveness base on an individual's sleep and wakefulness data.

Good sleep habits are closely related to overall health and performance.

"Sleep is an essential life function that many overlook," Regn. "Compromised sleep has significant consequences. About 80% of aviation accidents are due to human error, and pilot fatigue accounts for about 15 to 20% of that."

According to Regn, many Airmen do not get enough sleep often due to behavioral factors. The demands of work, family and other responsibilities make getting a good night's sleep a lower priority. Deployment can also add to sleep challenges.

"Poor sleep quality can be exacerbated by our mission tempo and demands," said Regn. "In an operational setting, it can be hard to adapt, making it more challenging to complete long-range missions."

The 711th's sleep and fatigue research is aimed at equipping the Air Force with the information needed to assess effectiveness, identify risks that may impact the mission, and prevent aviation errors while improving the health and safety of all Airmen.

"Our research, policies and mitigation strategies take into account that these Airmen have lives outside of their operational responsibilities that impact their sleep patterns and can cause fatigue," said Gunzelmann. "We can equip Airmen with the right information to optimize their sleep habits to enhance health and mission performance."

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Active Duty
NEUROLOGY

Headaches, Especially Migraines, Remain a Concern for Soldiers

By Mr. Ronald W Wolf (Army Medicine)

Almost everyone suffers from headaches. Estimates are that 90 percent of all people have a headache during their lifetime. Headache relief — especially migraine headaches — is a frustrating medical issue for those who suffer from them.

Headaches can be a special problem for Soldiers if the headache affects performance of duties. Effective relief is often illusive — just ask anyone who has migraine headaches.

For those of you who do not suffer from migraine headaches, here's the background. The pain is intense, often a pulsing or throbbing pain in one area of the head. The migraine may have a number of attacks, lasting up to 72 hours or more. Nausea or vomiting and sensitivity to both light and sound can make things even worse.

Although migraine is reported three times more often in women than in men, it affects more than 10 percent of people worldwide. One more thing, migraine often affects relatively young and healthy individuals well before retirement age, including children.

Individuals who suffer from migraine often know when it's coming. A migraine may be preceded by visual disturbances, such as seeing flashing lights, jagged lines, or even a temporary loss of vision. Sometimes, however, there is no warning at all.

It isn't always clear what triggers migraine headaches. A number of factors are usually cited, including stress or anxiety, hormonal changes, flashing lights, or lack of food or sleep. Some who have migraine attacks, however, say there is no obvious trigger.

Migraines may be associated with injuries associated with mild traumatic brain injury as a result of vehicle accident, military training or combat, and Soldiers should be aware of that.

According to the National Institute of Neurological Disorders and Stroke, part of the National Institutes of Health, more and more investigators believe that migraine has a genetic cause.

Migraine headaches may severely affect individual performance and as a result may impact unit readiness. Migraines can also have a behavioral health impact. Soldiers never want the team to think he or she can't be counted on to complete the mission. Some migraine sufferers report bouts of depression from the effects of migraines on their personal and professional life. Migraines are very debilitating — physically and mentally — and anything that affects the resilience of Soldiers is of great concern.

You or someone you know have migraines. Now what? No single cure for migraine exists because the factors that cause these headaches and how best to relieve pain are not fully understood.

Stress management strategies, such as exercise, relaxation techniques, biofeedback mechanisms, and other therapies designed to limit daily discomfort, may reduce the number and severity of migraine attacks. Some individuals have found relief with acupuncture.

The use of drugs aims to prevent the attacks or relieve the symptoms during the attacks, although prevention may involve both the use of medications and behavioral changes.

The U.S. Food and Drug Administration has approved a drug called erenumab (Aimovig) to prevent migraine in adults. The drug works by blocking the activity of calcitonin gene-related peptide (CGRP), a molecule that is involved in migraine attacks. Other similar-acting drugs (those that block CGRP) are under development.

Some drugs originally developed for epilepsy, depression or high blood pressure may improve in treating migraine. Botulinum toxin A (often referred to as Botox) has been shown to be effective in prevention of chronic migraine for some individuals. All of these choices involve discussions with your physician, and some of the potentially new options may be expensive.

If you have migraines, keeping a log of things that trigger your migraine may provide useful information for lifestyle changes that avoid the stimulus. Triggers cover a range including dietary factors, eating regular meals (including adequate hydration), stopping certain medications, and keeping a consistent sleep schedule.

You know all of this, you're thinking, and none of it works for your migraines. With the lack of a single effective treatment for migraines, the frustration levels can be through the roof.

Migraine research continues. Hopefully, soon, products and treatments that work effectively for you will be available.

army.mil

Active Duty
NEUROLOGY

Defeating a Migraine while Deployed

By Spc. Adam Parent, U.S. Army Central

When he arrived in the Middle East, U.S. Army Spc. Tariq Booker, an Army Reserve Soldier stationed at Ali Al Salem Air Base, Kuwait, was suffering from daily migraines which left him unable to perform his duties and barely able to get out of bed. However, thanks to a perfect mix of factors, Booker was able to undergo an operation at Camp Arifjan, Kuwait, which immediately alleviated his headaches.

In the past, when a service member stationed in the Middle East suffered from debilitating migraines of this severity, they were typically transported to a medical facility in Germany or the United States to receive the proper level of care. Removing Soldiers from the area of operations is not an ideal situation because it takes away from the effectiveness of the Soldier's unit. There is always a potential concern that the Soldier will not be able to return to their unit depending on the seriousness of their condition.

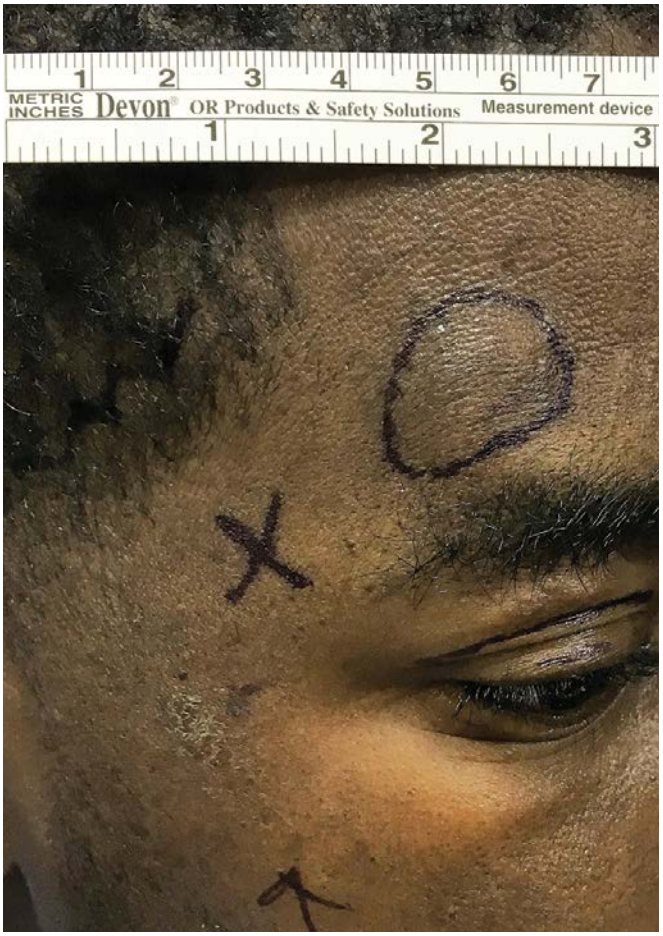
Over time, the doctors of the U.S. Army and the Kuwaiti medical system have been able to work together to improve the capabilities of the 75th Combat Support Hospital stationed at Camp Arifjan. American doctors with a wide variety of specialties are rotated through the 75th CSH on a regular basis and they meet with doctors in Kuwait multiple times a week to share knowledge and create joint care plans for patients if needed.

"We have a great relationship with our host nation partners," said Lt. Col. Owen Johnson, a surgeon with the 75th Combat Support Hospital. "We have an office in the Combat Support Hospital that coordinates referrals to all sorts of experts at some of the hospitals in Kuwait."

Johnson is an active-duty doctor who is well-versed in general surgery with a specialization in plastic and reconstructive surgery and additional sub-specialty training in craniomaxillofacial surgery. Craniomaxillofacial surgery deals with treating issues of the head, face, and neck region, said Johnson.

When Booker first visited the 75th CSH the medical team there evaluated his condition and brainstormed what the best care solution would be from the available possibilities offered by the U.S. Army doctors and their Kuwaiti partners.

They found that Booker's migraines began after he was involved in a vehicle rollover during a training exercise in the months leading up to his deployment. He sustained injuries to his head and soon developed a painful growth on his forehead that did not reduce in size over time. Booker struggled with the migraines for a few months before coming to Kuwait, where the migraines increased in frequency and intensity to the point of making him unable to work.



Medical personnel from the 75th Combat Support Hospital at Camp Arifjan, Kuwait, mark Spc. Tariq Booker's skin before performing a surgery to alleviate his migraines, July 20, 2018. Doctors from the U.S. Army and Kuwaiti government work together to create the best care plans possible for patients. *Photo by Spc. Adam Parent*

Medical personnel from the 75th Combat Support Hospital at Camp Arifjan, Kuwait, perform a surgery on Spc. Tariq Booker to alleviate migraines, July 20, 2018. Doctors from the U.S. Army and Kuwaiti government work together to create the best care plans possible for patients.
Photo by Spc. Adam Parent

"When I got here I guess working in the heat all the time caused these serious migraines, and I could feel the cyst throbbing," said Booker.

After the medical team reviewed Booker's condition, it was believed that his migraines and the growing mass on his forehead were caused by a nerve issue called a neuroma, which was created when one of his nerves was damaged in the vehicle rollover.

It was decided that Johnson would take the lead on a surgery to remove the neuroma due to his unique experience with craniomaxillofacial surgery.

Doctors with a specialty in plastic surgery are not common in the military and are rarely available in deployed environments, so his expertise was crucial in accomplishing the surgery with the resources available in the 75th CSH in Camp Arifjan.

Johnson thought it would be most prudent to create a single incision above Booker's eyelid to reach the neuroma while also keeping the surgery as minimally invasive as possible. Another benefit to the location of the incision was the ability to easily hide the scar from the surgery in a less prominent place than on Booker's forehead.

After a few hours in the operating room, the procedure was finished and Booker was ready to heal. Booker's migraines immediately stopped and the mass on his forehead almost entirely disappeared in the following days of recovery.

"I'm healing pretty quick," said Booker. "I guess they thought it was going to be a longer process, but I'm healing pretty quick. I feel like Wolverine!"

Booker's speedy recovery at the 75th CSH showcases the medical capabilities the U.S. Army and the Kuwaiti government are able to provide for Soldiers in the area of operations. Thanks to the combination of modern facilities, rotation of specialized Army doctors, and interoperability between the American and Kuwaiti governments, Soldiers can get back to the fight faster.

army.mil

Active Duty
NURSING

Naval Hospital Jacksonville Ranks Top Ten in Nurse Communications

By Jeanne Casey and Yan Kennon, Naval Hospital Jacksonville

Naval Hospital Jacksonville ranks in Florida's top ten hospitals for nurses' communication with patients, according to Becker's Hospital Review.

At Florida's top ten hospitals, at least 84 percent of patients surveyed indicated "nurses always communicated well."

"In healthcare, effective communication is a key component of patient safety," said Capt. Matthew Case, Naval Hospital Jacksonville commander and Navy Medicine Readiness and Training Command Jacksonville commanding officer. "We value this recognition for communication, as part of our larger approach to patient safety."

This recognition comes as the nation celebrates Nurses Week (May 6-12) and the Navy Nurse Corps' 112th birthday on May 13. Nurses Week, first observed in 1954, this year coincides with the 200th anniversary of the birthday of nursing pioneer Florence Nightingale.

The Military Health System's military and civilian nurses play leading roles in maintaining military health and readiness.

The Navy Nurse Corps was established by Congress in 1908. There were 20 original members of the Navy Nurse Corps, known as the "Sacred Twenty." Navy nurses fly with wounded from battle-torn areas; provide care in the fleet and on hospital ships; establish local nursing schools, clinics and hospitals in remote areas of the world; lead hospitals worldwide; and serve as scientists, researchers and teachers.

"I am extremely proud of my staff for this recognition," said Capt. Susanne Blankenbaker, NH Jacksonville director of nursing services. "It is a true testament to our nurses' dedication to safety and patient-centered care. It's a direct result of our continuous process improvement projects, acting on patient feedback."

TeamSTEPPS®, one of the communications frameworks used by nurses and other staff at NH Jacksonville, is an evidence-based set of teamwork tools, aimed at optimizing patient outcomes.

Scores were collected from April 2018 through March 2019.

Lt. Cmdr. Nicole Cuthbertson and Lt. Timothy Dye view patient flow charts at Naval Hospital Jacksonville's Emergency Department. Cuthbertson, a native of Miami, Florida, holds a Master of Science in Nursing from Liberty University. "There's no other field that allows you to build so many valuable relationships simply by doing your job. Being a nurse is one of the most gratifying professions and I wouldn't want to do anything else!" National Nurses Week (May 6 – 12) is celebrated in commemoration of the birthday of Florence Nightingale, the founder of modern nursing. Military and civilian nurses play leading roles in maintaining military health and readiness. *U.S. Navy photo by Jacob Sippel, Naval Hospital Jacksonville*

Naval Hospital Jacksonville and Navy Medicine Readiness and Training Command Jacksonville deliver quality health care, in an integrated system of readiness and health. NH Jacksonville includes five branch health clinics across Florida and Georgia.

It serves 163,000 active-duty, family members, and retired service members, including 75,000 patients who are enrolled with a primary care manager. NMRTC Jacksonville ensures warfighters' medical readiness to deploy and clinicians' readiness to save lives. NMRTC Jacksonville includes five units across Florida and Georgia.

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Active Duty
NURSING

Nurse, Leader, Role Model: Sgt. Justin Rupp

By Paul Lara, Belvoir Eagle

"Some would say I'm a little 'old-school' Army," said Sgt. Justin Rupp, sitting in a conference room at Fort Belvoir Community Hospital last week. His young looks don't give any hint of 'old school,' but his supervisors and mentors said this NCOIC has a hand in every aspect of the operations at 7 North.

When the pandemic's wave was heading toward Virginia, hospital leadership called on Rupp to radically transform the unit.

"The military says 'do more with less' and then a pandemic happens, and you realize less is not more," said Rupp. "A lot of hospitals don't have infection-control units. This hospital didn't have an infection-control unit. So, in 12 hours, we turned 7 North, a cardiac unit, into a COVID unit, and even before we were completed, we were admitting COVID patients. It was incredible. My staff handled it better than I thought they would. We haven't had a single transmission … yet," Rupp said, knocking on the wooden conference table.

Rupp said COVID-19, the disease caused by coronavirus, hasn't hit Servicemembers as hard as the general population, since they are healthier. "We force them to be healthier. We always say 'it's part of your job to work out, so figure out your time, because I'm paying you for it.'"

Sgt. Justin Rupp, NCOIC of Inpatient Ward 7 North at Fort Belvoir Community Hospital, checks on supplies. Rupp and his team converted the ward for COVID-19 treatment in 12 hours.
Photo by Paul Lara

Rupp said many people are shocked to hear he's not a combat combat medic specialist, but a licensed practical nurse.

"The Army has transitioned many times, throughout the years, to Whiskey, and the Army came up with these licensed practical nurses," he said. "So, once you're a whiskey, and you knew your craft, then you move to a licensed practical nurse," he said, noting the Army ended that transition, and now they are two separate specialties.

Nursing challenges

"A lot falls on nursing — perhaps too much. Nursing is not linens. It's not IT. It's not maintenance of the equipment or supplies. It's not all the ancillary things. but then all these things fall on nursing, and we have to be good at it, because that's where the boots hit the pavement. In a nutshell, nursing is customer care."

"Customer service can make or break an industry, all around. I think nursing care gets so much dumped on them that they're burning out, like teachers and frontline Soldiers and Sailors, because we put so much on their shoulders. Nurses are the customer service to patients and families.

"Nursing can be hard. I guarantee most of my people have back and knee problems, because they're picking up a patient, or catching a patient if they start to fall, and it's pretty physical work," said Rupp.

Maj. Stacie Gibson, deputy chief of the hospital's medical/surgical ICU, describes Rupp as someone who peers seek for support.

"A lot falls on nursing — perhaps too much. Nursing is not linens. It's not IT. It's not maintenance of the equipment or supplies. It's not all the ancillary things. but then all these things fall on nursing, and we have to be good at it, because that's where the boots hit the pavement. In a nutshell, nursing is customer care."

Sgt. Justin Rupp, NCOIC of Inpatient Ward 7 North at Fort Belvoir Community Hospital, assists a nurse entering with supplies.
Photo by Paul Lara

"He exemplifies what it means to be an NCO; the backbone of the Army," said Gibson. "He's there physically — constantly helping Soldiers, Sailors or anybody, to pass either physical tests that they need to do. He's here on weekends, making sure that promotion boards paperwork and preparation is ready. He'll come in nights, if he needs to counsel an individual or check on them, and he truly cares about what happens here, and that is something that makes him thrive," she said.

Leadership risks

"An old boss told me 'if you're not ticking people off, you're not doing the right thing.' You're not going to make everybody happy. Master Sergeant Long, (another LPN at Belvoir Hospital) told me 'You're doing great things, but you can ruffle feathers, and I told him the reason I ruffle feathers, is because I care," Rupp said.

"As a leader, if you can't stand up in front of people and give them the hard answers, then you probably shouldn't be a leader, in the first place," said Rupp, adding he tries not to lead by order, but by explaining why it's important and explaining the bigger picture.

"He's amazing. He really is more than just a sergeant in the Army," said Alegra Halyard, the assistant officer in charge on 7 North. "He really is an extension of the organization of the unit. He takes the values and the care very seriously and he extends that to the patients and the staff."

"I always tell him that he'll be sergeant major of the Army, one day. There's just no doubt about that, to me," Halyard said with a smile.

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Active Duty
NUTRITION

Nutrition Quality Key to Maximizing Immunity

By Shireen Bedi, Air Force Surgeon General Public Affairs

A display of fruits, vegetables, nuts and water, as shown at Ramstein Air Base, Germany, Jan. 10, 2020. In response to the upcoming closure of the Rheinland Dining Facility, Health Promotions is offering cooking classes and information on healthy eating. *U.S. Air Force illustration by Airman 1st Class Jennifer Gonzales*

Proper nutrition is vital to health and wellness, but during the COVID-19 pandemic it is even more important Airmen work to support their immune system through a quality diet.

According to Maj. Denise Campbell, Air Force Health Promotion Nutrition chief, nutrition quality is key to maximizing immunity. This means a diet that includes lean protein, vitamins A, C, D and E, zinc and fiber.

"Healthy foods have a role in maximizing our body's immune system, so look for lean protein, fruits and vegetables with essential vitamins, whether fresh, frozen or canned," said Campbell. "[U.S. Department of Agriculture's] MyPlate is the best visual aid to show these recommendations. Making three-fourths of your plate colorful, plant-based foods, and choosing zinc-rich protein like lean ground beef, pork loin, beans and nuts, will help you meet this goal."

With COVID-19 changing so many aspects of Airmen's lives, maintaining proper eating habits can be challenging. For example, teleworking Airmen may be faced with competing responsibilities like childcare in addition to work. Airmen who are supporting essential missions may face longer hours.

These challenges can make it harder to eat healthy. Campbell says it is important to focus on small improvements, and control what you can.

"If you find yourself getting frustrated or wanting to give up, take a step back and look at what you can control as it relates to healthy nutrition, and celebrate those things," said Campbell. "It is important to be realistic with your goals. This might not be the best time to do a complete overhaul of your diet, but focusing on small wins can help."

Campbell says it could be as simple as making one choice to eat a little bit healthier each day. This can be choosing a more nutritious snack, replacing sugar-sweetened beverages with water, or trying a new fruit or vegetable.

Campbell also suggests focusing on mindfulness to limit overeating, especially unhealthy foods.

"Under normal circumstances, our eating cues are part of our work routine, but COVID-19 has thrown many of our routines out the window," said Campbell. "That impacts when, where, what and how much we eat. It is important to practice mindful eating. Instead of eating directly out of the food bag or box, put your snack in a bowl and eat at the table. This allows you to dedicate time to eat and pay attention to the type of food you're eating."

The Air Force has resources for Airmen to ensure they meet readiness requirements, and ensure they sustain overall health through a nutritious eating plan. The Air Force has been implementing the Health and Readiness Optimization, or HeRO program, which partners with squadrons to improve the Airmen's health habits, including nutrition.

In response to COVID-19, many base health promotion offices are providing online resources on their social media pages, including virtual cooking demonstrations. Additionally, many dietitians are offering virtual appointments to continue to support Airmen's goals.

"With COVID-19, Airmen may be thinking about their nutrition differently or taking more time to focus on their health goals," said Campbell. "To help with that, many of our dietitians are offering virtual appointments, either over the phone or on an approved video platform."

While COVID-19 has created many changes, including the postponement of fitness testing, it is still important that Airmen are reminded of the value of a nutritious diet, especially when it comes to improving immunity.

"Proper nutrition is not just a check mark in preparation for your fitness test, it is vital for your overall wellbeing," said Campbell. "Don't lose sight of that larger goal. Celebrate the small goals you can control today, which will help you attain long-term health and wellness goals once we return to a state closer to normalcy."

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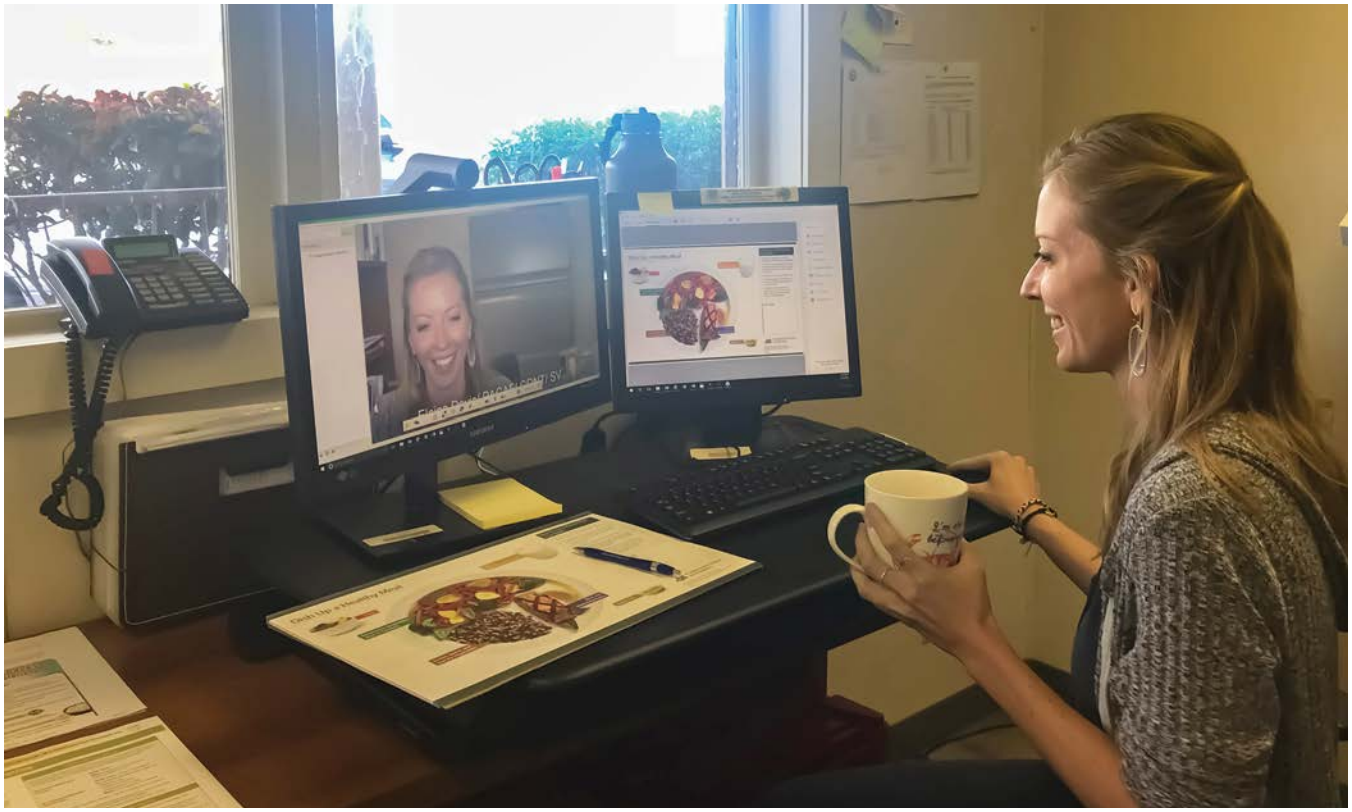


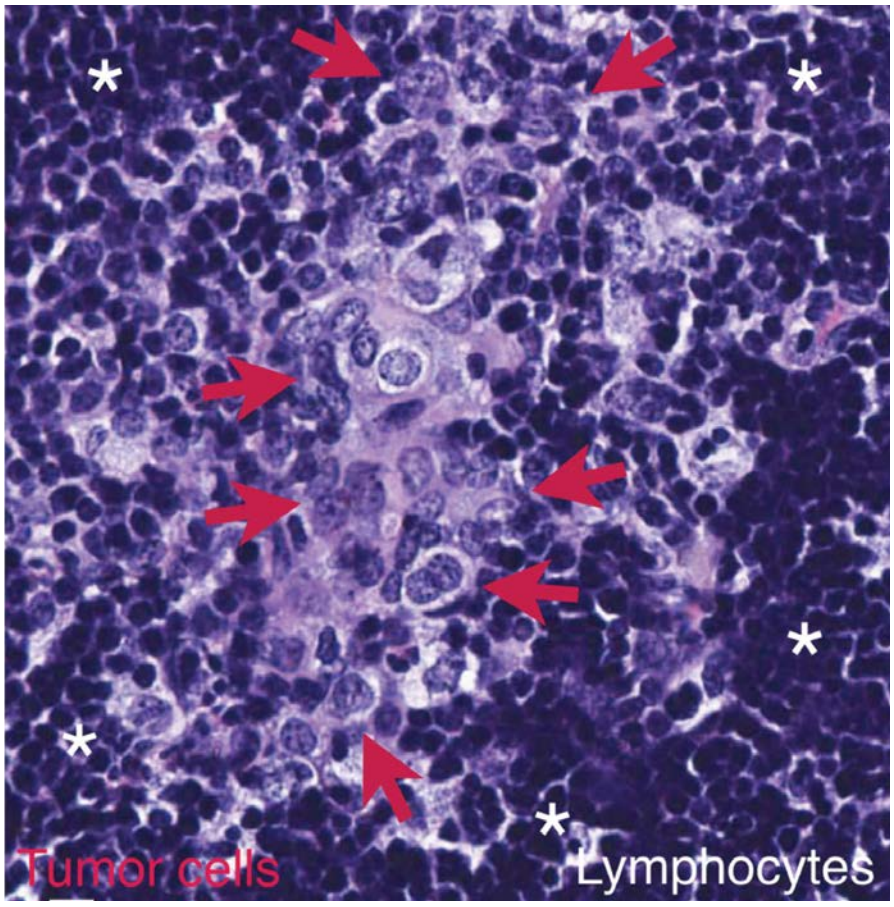
Elaine Davis, a registered dietician at Joint Base Pearl Harbor-Hickam, Hawaii, is preparing for a tele-medical nutrition therapy appointment with a patient at Eielson Air Force Base, Alaska on Feb. 6, 2018. Using a video teleconference, patients have access to dieticians anywhere, and can get vital information in disease management and preventative care. *Photo courtesy of the U.S. Air Force*

Active Duty
ONCOLOGY

Using a Novel Genetically Engineered Mouse Model to Identify New Drug Targets for Treatment-Resistant Metastatic Prostate Cancer

By Lloyd Trotman, PhD, Cold Spring Harbor Laboratory

The standard of care approach for treating metastatic disease utilizes anti-hormone therapy to shut down the main driving pathway of the cancer cells. Unfortunately, cancer cells usually adapt to this altered environment and they become resistant to this form of therapy. With approximately 32,000 men in the U.S. failing to respond to available therapies and dying of prostate cancer each year, it is important to find new options for treating metastatic disease. The focus of Dr. Lloyd Trotman's research at the Cold Spring Harbor Laboratory is to understand the mechanisms driving human prostate cancer in its most lethal, metastatic form, in order to identify novel drug targets for these patients.



Red arrows indicate prostate cancer cells that have metastasized to the lymph nodes of a genetically engineered mouse. Thsi process is blocked in mice lacking the enzyme PHLPP2. *Photo courtesy of CDMRP*

In order to properly study prostate cancer metastasis, Dr. Trotman and his research team sought to develop a mouse model that recapitulates human disease but in a much accelerated time frame. With support from a FY13 Idea Development Award, they developed a new genetically engineered mouse model called RapidCaP. This mouse model accurately re-creates the journey from a native prostate tumor to metastasis in an immune competent animal.

The MYC gene is a known oncogene and driver of many cancers, including prostate cancer where it is often highly expressed in metastatic disease. Unfortunately, there has been little success in targeting MYC with drugs so far. Using the RapidCaP mouse model they developed, Dr. Trotman and his team have discovered that MYC depends on an enzyme called PHLPP2 (pronounced FLIP-2), which protects MYC from degradation. This finding has revealed a novel approach to target MYC indirectly by developing PHLPP2 inhibitors.

The research team at Cold Spring Harbor is continuing to make advances in understanding basic fundamentals of metastasis. Since the early 2000s, they have made huge strides in understanding prostate tumors by comparing human patient samples with those from genetically engineered mice. Through their PCRP-funded work, they have identified PHLPP2 as a druggable target of MYC-driven prostate cancer and are currently testing how to best inhibit PHLPP2 in vivo. Furthermore, the team continues to use the RapidCap mouse model to identify additional novel drug targets in hopes to develop new therapies for men with treatment-resistant metastatic prostate cancer.

cdmrp.army.mil

Active Duty
ONCOLOGY

Cancer Registrars Crucial to Data Collection

By Merrie Schilter-Lowe, 60th Air Mobility Wing Public Affair

The death rate from all cancers diagnosed in the United States has been on the decline for the past 25 years. Cancer patients also are living longer. It was estimated in 2016 that 15.5 million survived their bout with cancer and that number is expected to increase to 20.3 million by 2026, according to the National Cancer Institute.

Early detection and treatment play an enormous role in both the decline in deaths and the increase in survival rates among cancer patients. But there is a third element that people may not be aware of: cancer registrars.

The David Grant USAF Medical Center at Travis Air Force Base employs three registrars who collect and consolidate a complete summary of a patient's cancer from diagnosis to death.

Registrars capture the essential data used by researchers, healthcare providers and public health officials for research, to improve prevention, screening and treatment programs and to monitor trends.

DGMC has been collecting cancer database since 1986, said Maria Capistrano, 60th Medical Group cancer registrar.

"All the information goes into a database called (the Automated Central Tumor Registry) in Washington D.C.," she said.

ACTUR is the Department of Defense's registry, which is managed by the Joint Pathology Center. ACTUR contains consolidated data from 1998 to the present. DOD uses the data to analyze cancer trends among beneficiaries and the total force and to train registry personnel. DOD also makes this data available for cancer research, surveillance and reporting activities.

Medical staff at David Grant USAF Medical Center view monitors while performing video-assisted thoracoscopic surgery to remove the upper left lobe of a cancer patient's lung Feb. 26, 2019 at Travis Air Base, California. During the procedure, surgeons inserted a tiny camera (thoracoscope) into the patient's chest through two small incisions. The thoracoscope transmits images to monitors, guiding the surgeons in performing the procedure. *U.S. Air Force photo by Heide Couch*

"Very few of our (cancer) patients are active duty members," said Maj. (Dr.) Claire Hiles, 60th MDG hematologist and oncologist. "That's mostly because the active duty population don't tend to get cancer because they are younger. Most of our patients are in their 60s and 70s, the same as it is in the general population."

Of the more than 200 patients diagnosed with cancer in 2018 at DGMC, only 11 were active duty, according to Capistrano.

By law, every state and U.S. Territory compiles cancer data, which is funneled to the National Program of Cancer Registries. The Center for Disease Control and Prevention uses this information to determine the number of people who get cancer each year, to track cancer death rates, prevalence and survival rates by state and county, sex, age, race and ethnicity.

"The CDC also uses the information to evaluate the success rates at hospitals as well as individual physicians in terms of cures and how long the patient lives," said Lt. Col. (Dr.) Joseph McDermott, 60th MDG staff pathologist and deputy medical director at Travis.

Since not all military treatment facilities have cancer registrars, nine other bases

Dr. Saudra Kabagamba, civilian resident, is assisted by Senior Airman Michael Dickison, 60th Surgical Operations Squadron, surgical technician, as she prepares to perform video-assisted thoracoscopic surgery to remove the upper left lobe of the lung in a cancer patient Feb. 26, 2019 at the David Grant USAF Medical Center heart, lung and vascular center, Travis Air Base, California. During the procedure, surgeons insert a tiny camera (thoracoscope) into the patient's chest through two small incisions in the chest wall. The thoracoscope transmits images to a video monitor, guiding the surgeons in performing the procedure. There are more than 100 types of cancer, but the law only requires that some, like lung cancer, be reported to the National Cancer Institute. *U.S. Air Force photo by Heide Couch*

report their data to Travis, including Beale, Los Angeles and Vandenberg AFBs in California; F.E. Warren AFB, Wyoming; Fairchild and McChord AFBs in Washington; and Peterson AFB, Colorado.

Cancer data collection begins when a patient is diagnosed or receives treatment. "We get data from pathology and imaging reports to determine if a patient has a cancer that is reportable by law," said Capistrano.

There are more than 100 types of cancer, according to the National Cancer Institute. However, only some are reportable by law, including brain, breast, colorectal, lung, prostate and bladder cancer. "Once the patient is diagnosed, we send them a letter telling them we have put them in our registry," said Capistrano.

Eventually, the patient's file will include demographics, the diagnosis and the course of treatment. This information is entered into the registry.

"No private information is reported to the CDC, just aggregated data," said McDermott. "Tumor patients are followed for the rest of their lives to see if the cancer comes back and how the patients is doing."

If the patient is referred to a specialist, the registrars contact the patient's oncologist for information. If they do not hear from a patient within 12 to 18 months, the registrars send another letter asking the patient if they are continuing with treatment, said Capistrano.

Registrars also coordinate tumor board meetings, she said. DGMC has three tumor boards – one for cardiothoracic cancers, another for general cancers and a third for breast cancer, which is the most common cancer diagnosed in the United States.

"Cancer patients are way too complex for one person to treat so a team of providers – including surgeons, radiologists, medical oncologists, radiation oncologists, pathologists, nurses and other healthcare providers – meet to determine the best course of treatment and how they will coordinate care for the patient," said McDermott. "Each person looks at the patient from their angle and specialty."

Depending on various factors, treatment options may include surgery, radiation, immunotherapy, chemotherapy, hormone therapy, targeted therapy or local therapy.

Registrars record meeting minutes, including information about the stage and location of the cancer and the recommendations from each specialist. These records are vital if the patient is referred to another provider.

Each year, more than 1.5 million people are diagnosed with cancer, which is the No. 2 killer in the nation, behind heart disease, according to the CDC. However, cancer treatment is improving, cancer patients are living longer and healthcare costs are decreasing, thanks in part to cancer registrars capturing precise data.

"The information helps (the CDC) figure out what causes cancer, if there are places that need special help and what treatments work," said McDermott.

travis.af.mil

Active Duty
OPHTHALMOLOGY

Ophthalmology Teams Give Guyanese the Gift of Sight

By Senior Airman Derrick Seifert, 12th Air Force (Air Forces Southern)

U.S. military ophthalmology teams deployed in support of New Horizons training exercise 2019 and partnered with Guyanese doctors at the Port Mourant Hospital in Port Mourant, Guyana.

The ophthalmology center at the Port Mourant Hospital was established to provide aid to the Guyanese population by screening and selecting patients to receive cataract and pterygium surgery in support of NH19. Many of the Guyanese patients have been waiting years to receive either cataract or pterygium surgery to regain their vision.

"Normally, we see over 1,500 patients a month and we have a backlog of over 800 patients who have been waiting for surgery, some over five years," said Dr. Devendra Radhy, Port Mourant Hospital doctor in charge. "Unfortunately, the ophthalmology clinic was unable to perform cataract surgeries until last week when we had a team partnered with a Guyana doctor who was able to do 22 surgeries. That was a kick start and hopefully we can continue this flow and get through our backlog."

According to Rahdy, cataract and pterygium surgery can cost between 80,000 to 100,000 Guyanese dollars, which is close to 500 U.S. dollars. Many of the patients range between the ages of 50 to 80 and are poor, with an average annual household income of less than $4,000 U.S. dollars. With the support of the U.S. military and NH19, Radhy has seen a dramatic change in his patients.

"Having the Americans here at this moment changes everything in the sense of how people look at the ophthalmology center," Radhy said. "They can readily say that we are providing the service they have been waiting for a long time for. With this, you can see a different look in the patients. It's more positive. Even from last Monday, when we started calling the patients, you see more smiles, laughing and joy knowing they will have the surgery done."

This exercise provides U.S. military members an opportunity to train for an overseas deployment. It promotes bilateral cooperation by providing opportunities for U.S. and partner nation military engineers, medical personnel and support staff to work and train side by side.

"Our primary purpose is to train our (U.S. service members) on combat relevant eye care," said Army Col. Darrel Carlton, Brooke Army Medical Center, San Antonio, regional health command central consultant for ophthalmology. "Our component of the exercise is the ophthalmology side where we will be conducting cataract and pterygium surgeries, while at the same time training our Airmen and Soldiers to take care of cataracts because the techniques we use in this setting are similar to what we can expect to see in places like Iraq and Syria without seeing the trauma."

U.S. service members perform postoperative checks on the last ophthalmology center patient during New Horizons exercise 2019 at Port Mourant, Guyana, May 16, 2019. The ophthalmology clinic was established to provide aid to the Guyanese population by screening and selecting patients to receive cataract surgery in support of New Horizons 2019. The New Horizons exercise 2019 provides U.S. military members an opportunity to train for an overseas deployment and the logistical requirements it entails. The exercise promotes bilateral cooperation by providing opportunities for U.S. and partner nation military engineers, medical personnel and support staff to work and train side by side. *U.S. Air Force photo by Senior Airman Derek Seifert*

The ophthalmology component of New Horizons exercise 2019 came to an end on May 16th, with a closing ceremony and remarks from a Guyanese patient.

"I want to say that you have done an excellent job for us Guyanese, whichever part of Guyana they came from looking for a service that they badly in need of," said Joyce Marks, Guyanese patient. "I want to let you know, on behalf of all the Guyanese that you attended to, that we are very, very, very grateful for that service. And I ask that God continues to bless you all with the gift and knowledge that he has imparted in all of you for the benefit of not only yourself, but for all of mankind that comes in contact with you."

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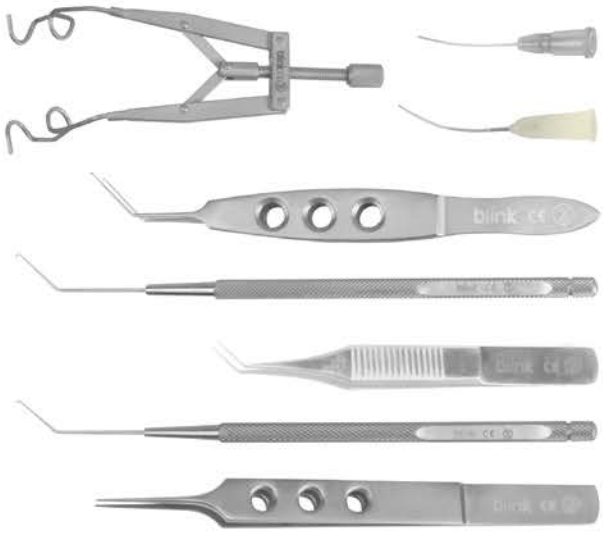

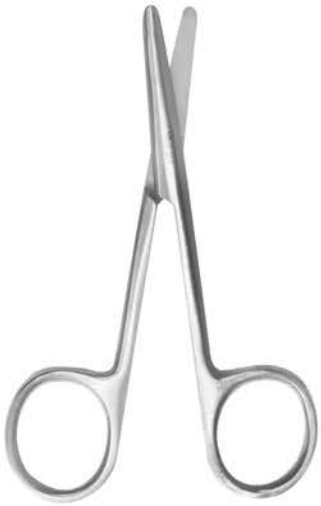

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Active Duty
OPTOMETRY

Tyndall Airman Named AF Ophthalmic Airman of the Year

By 2nd Lt. Kayla Fitzgerald, 325th Fighter Wing Public Affairs

Vision is an essential component of readiness for every service member.

The 325th Operational Medical Readiness Squadron's optometry clinic provides visual and ocular health services, including routine check-ups as well as acute exams.

The clinic also serves as the main source for glasses and gas mask inserts for Tyndall's active duty personnel and plays an important role in deployment readiness.

"We are quite significant to the Air Force mission as we are responsible for monitoring readiness in relation to visual standards," said Staff Sgt. Jordan Cutaia, 325th OMRS ophthalmic technician. "Anyone who is deploying must see us to ensure that they are meeting visual requirements."

U.S. Air Force Staff Sgt. Jordan Cutaia, 325th Medical Group optometry technician, picks out glasses June 6, 2019 at Tyndall Air Force Base, Florida. With the remaining 40% of active duty and over 90% civilian personnel after Hurricane Michael, the medical group reconstituted the full spectrum of medical care in a safe manner. *U.S. Air Force photo Airman 1st Class Alexandra Singe*

Cutaia was recently selected as the Air Force Ophthalmic Airman of the Year for his commitment and hard work.

"I'm typically a very 'under-the-radar' type of person, so such recognition pushes me a bit out of my [comfort] zone," said Cutaia. "Winning this has shown me that I am capable of so much more than I know."

Ophthalmic technicians play an instrumental part in the operation of the optometry clinic.

"My primary role as a technician is to essentially run the clinic and assist the optometrist in any way I can," said Cutaia. "We are the face of the clinic, and our patient's primary source of information for anything eye-related."

Cutaia enlisted in the Air Force with a desire to work in the medical field and has a passion for sharing his knowledge with others.

"I think my favorite thing about my job is being able to teach our patients about their eyes," said Cutaia. "I think some people take their eyes for granted and being able to teach our patients about the significance of their eyes is very fulfilling."

The optometry clinic has overcome many challenges since Hurricane Michael devastated the base and Northwest Florida in 2018. Recovery efforts after the storm strengthened the relationship between Tyndall's clinic, Eglin Air Force Base and Hurlburt Field, according to Cutaia.

"Relying on our neighboring bases was crucial because it allowed us to ensure our patients were properly taken care of while we worked to rebuild our clinic," said Cutaia. "It was a very humbling experience, as everyone was more than willing to help each other out," Cutaia continued.

Cutaia was quick to recognize others who have been influential in his career. "I have to give credit to my supervisor, Technical Sergeant Eric Digregorio, as I would not have accomplished such recognition without him," said Cutaia. "He cares about his people and really goes above and beyond to ensure they are set up for success."

The optometry clinic provides an essential service to Tyndall and the team's hard work helps the base reach its goal of continuously improving so the 325th Fighter Wing can be better today, and even better tomorrow.

tyndall.af.mil

Active Duty
ORAL HEALTH

Airmen Urged to Maintain Healthy Dental Habits During COVID-19 Pandemic

By Shireen Bedi, Air Force Surgeon General Public Affairs

"Deferring non-urgent dental care is one way we can decrease the chances of spreading COVID-19, while ensuring the health and readiness of our Airmen," said Col. Donald Sheets, Air Force Dental Policy and Operations chief. "We are still recommending continuing dental exams for active duty Airmen preparing to deploy to ensure they are ready to go out the door. Commanders at all levels are empowered to make the necessary assessments and determine if dental care is critical to the unit mission."

Because the Air Force maintains robust annual medical readiness requirements for its members, the active duty population entered deferred dental operations in good dental health. Sheets stresses the importance of dental health upkeep during this pause on routine care.

"Our Airmen get seen every year and usually require very little dental care," said Sheets. "It is vital that Airmen and their families continue practicing good dental habits and eating a healthy, low sugar diet to maintain their oral health."

While Airmen are aware of proper brushing and flossing techniques, Sheets says Airmen may not be aware of how stress can affect dental health. This is especially important as state governments and the DoD continue implementing social distancing and stay-at-home measures.

"In times of stress, people often clench and grind their teeth, or what is also known as parafunction," said Sheets. "Patients should be aware if they are experiencing increased stress and take steps ensure that they are not negatively impacting their oral health."
Sheets suggests that those who are overcome with stress reach out to their health care provider and take advantage of telehealth services. Additionally, the dental clinic is also available via phone if a patient needs additional guidance.

"Our clinics are staffed and Airmen can call their clinics to speak to someone if they have a dental issue without having to physically come into the clinic," said Sheets. "We can speak to Airmen about preventive measures, discuss home care, and give them guidance on safely coming into the clinic if it is absolutely necessary."

Col. Michael Burke (left), 21st Medical Group commander, passes the 21st Dental Squadron guidon to Col. Donald Sheets, 21st Dental Squadron commander, during a change of command ceremony. *Photo courtesy of Dennis Howk, U.S. Air Force*

For Airmen who require emergency or deployment-related dental care, Sheets explains that significant precautions are taken to ensure the safety of medical personnel and patients.

"Any time a patient enters a military treatment facility, there is a screening process to assess risk for exposure to COVID-19," said Sheets. "The dental team checks if a patient knows they have COVID-19 or associated symptoms. We also know that a patient can be asymptomatic, so we employ personal protective equipment, and follow CDC and the ADA safety guidelines on providing care during this pandemic."

Air Force Dental Service medics are vital to preparing Airmen readiness so they can perform their mission at home and abroad, said Sheets.

"Our primary goal is to keep everyone safe while maintaining mission-essential readiness requirements," said Sheets. "Moving forward, we are looking at how to reinstate routine care as the response to COVID-19 allows. It is our job to ensure the oral health of our service members and ensure they are ready to support the mission."

airforcemedicine.af.mil

Active Duty
ORAL HEALTH

Oral Health Supports Overall Health

By Airman 1st Class Jhauna Huerta, 71st Medical Operations Squadron

You know the saying, "You are what you eat." It's also true for dentistry.

The foods we consume not only shape our overall wellbeing, but can also impact oral health. Drinking soda, energy drinks, or just feeding our body too much "junk" puts us at higher risk of tooth decay or other oral diseases.

The moment food is introduced to the mouth, bacteria begins to convert it into acid. This acidity is what starts to break down your enamel, which results in decay.

The number of times you eat throughout the day can be important as well. People who snack or sip on sweet drinks throughout the day provide a sugar source for bacteria to fester and produce acid constantly. Rather than munching throughout the day, combine your snacks with a meal.

For those who enjoy snacking, make sure foods like cheese and crackers are consumed together. The combination of food neutralizes the acids that cause decay.

Other food and drinks to look out for are hard candies, sticky food, citrus fruits, coffee, food that "crunches," soda, alcohol, sports drinks, and even chewing on ice. All of these could cause a dental emergency.

Let's be real, it would be hard to cut these things out completely, so at least rinse your mouth with water to wash away anything left behind after you eat.

Some think that dieting will help their overall health, but lack of nutrients can cause a higher risk of periodontal disease. Vegetarians especially need to make sure they are incorporating calcium and vitamin D. Shortage of vitamin D could result in softening of teeth, causing decay and periodontal disease. So make sure you're soaking up some sun.

How we feel every day directly links to our oral fitness, so say goodbye to unhealthy food and hello to a better, healthier mouth.

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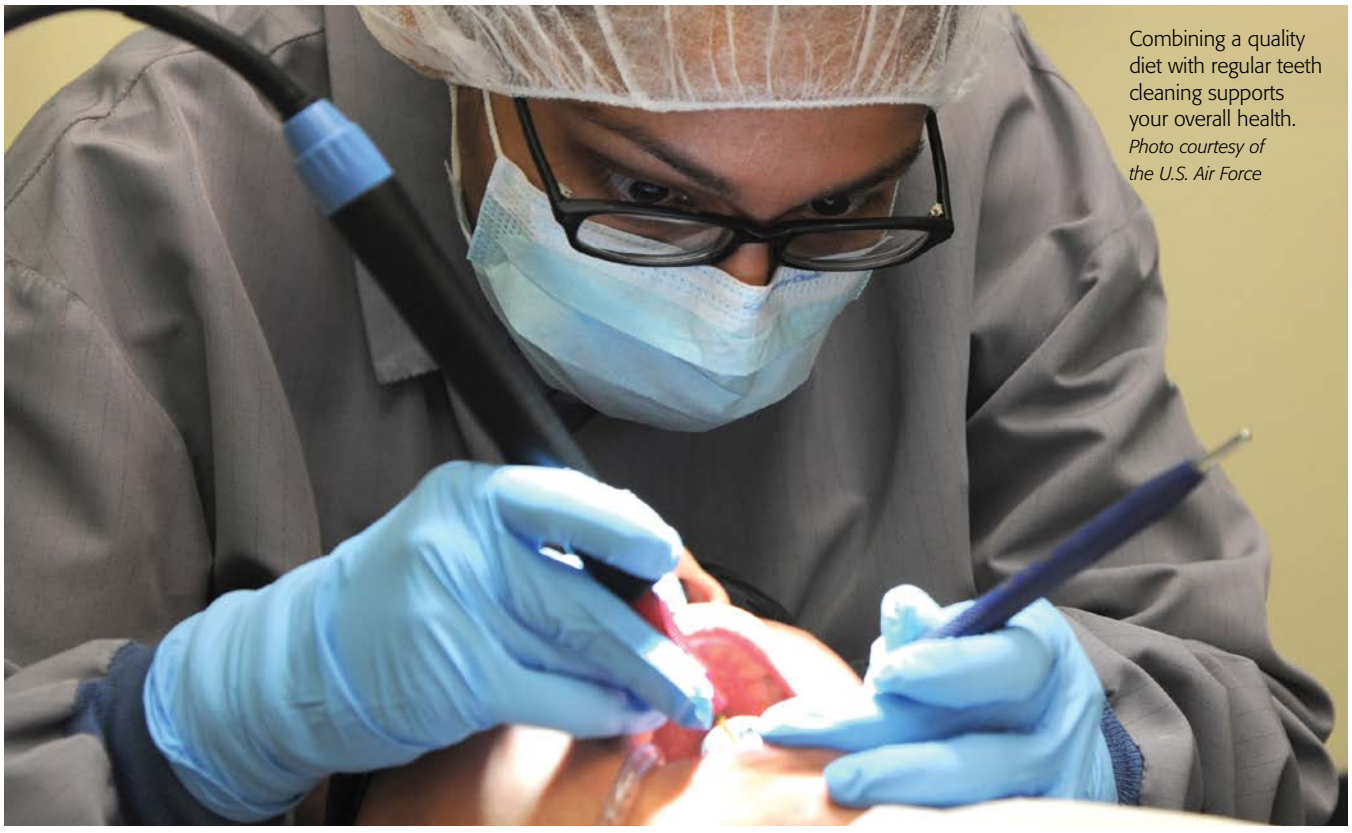

Combining a quality diet with regular teeth cleaning supports your overall health. *Photo courtesy of the U.S. Air Force*

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Active Duty
ORAL HEALTH

Nutrition and Oral Health

By Staff Sgt. Jessica Lau, 59th Dental Group

Good nutrition and healthy eating habits are important for the overall health of our bodies and for good oral health as well.

Most people know that brushing your teeth twice a day with fluoridated toothpaste and daily flossing is the best defense against cavities and gum disease. But, did you know reducing the amount of sugary and acidic foods we consume each day is also important for maintaining healthy teeth?

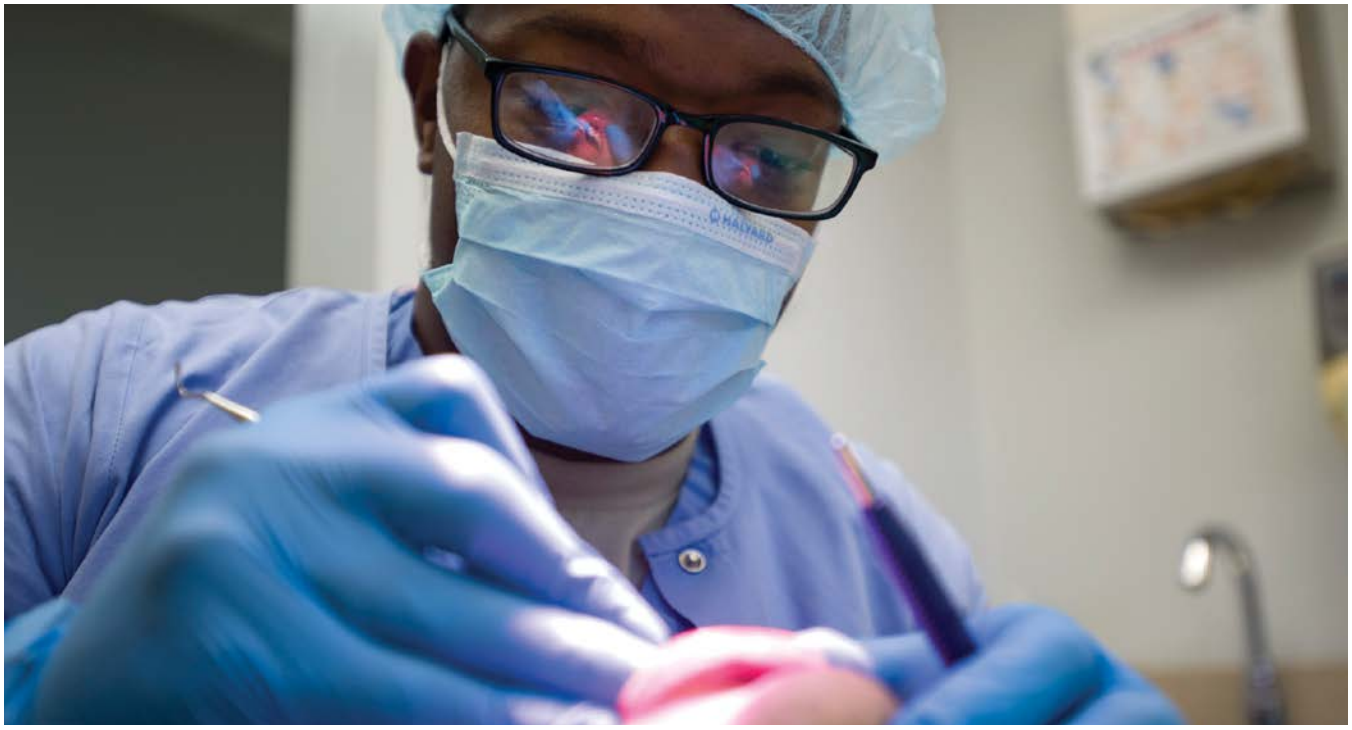
Many foods and drinks are labeled as healthy or natural, however, these products can contain the same amount of sugar as soda, sports drinks or candy, and some cases they may even contain more.

According to the American Dental Association, the best beverage to consume instead of sugared juices, sodas, sports drinks and energy drinks is water, especially water that contains a trace amount of fluoride. Fluoridated water can help strengthen the tooth's enamel against acidic attacks caused by the bacteria that live on your teeth and cause dental cavities.

Healthy food choices are not only essential in developing a healthy body, but can also help prevent tooth decay. Dairy products are good sources of protein and calcium, which are important for healthy teeth and bones. Casein is a protein found in milk that contains phosphorus and calcium which can also help to prevent tooth decay. Additionally, foods that are rich in the vitamins A, C and D are beneficial to tooth and gum health, while fruits and vegetables with that high-crunch factor, like apples, carrots and celery, help to remove dental plaque from our teeth.

Parents and caregivers are most influential in helping children make the best choice of healthful food and drinks. Promoting and offering healthy alternatives to those snacks that are high in sugars and carbohydrates helps to create healthy eating habits that can last a lifetime. Lead by example! Your body and teeth will thank you for years to come.

59mdw.af.mil



Staff Sgt. Tyre Jones, 359th Medical Group dental technician, a patient's teeth at the Randolph Dental Clinic on Joint Base San Antonio-Randolph, Texas, Jan. 10. The Randolph Dental Clinic provides annual exams and cleanings for over 12,000 patients every year. *U.S. Air Force photo/Staff Sgt. Kevin Iinuma*

Active Duty
ORTHOPEDICS

Naval Medical Center San Diego Orthopedics Surgery Department Among Hospital's Top Performers

By Petty Officer 3rd Class Jacob L Greenberg, Naval Medical Center San Diego

Naval Medical Center San Diego's (NMCSD) orthopedics surgery department was chronicled as a top-performing department during fiscal year 2019 (FY19).

The Department of Orthopedic Surgery's mission is to provide clinical and surgical services for active duty Navy and Marine Corps personnel, active duty members of other federal, uniformed services, and to dependents and retirees.

The department also provides specialty training in orthopedic surgery to medical officers through an accredited, residency training program, and to Hospital Corps personnel via on-the-job training.

According to the Orthopedic Surgery Department, the department saw 43,048 outpatient clinic visits during FY19, and supported NATO's Role 3 multinational medical unit in Kandahar, Afghanistan, with two deployed surgeons.

In keeping with NMCSD's culture of continuous training, the department maintains a surgical residency program.

"The residency program is integral to the Orthopedic Department's function and success," said Capt. Scot A. Youngblood, NMCSD's orthopedic surgery department head. "In June of 2019, four residents graduated and subsequently passed their written boards, and are now productive, orthopedic surgeons at their gaining commands."

Medical officers assigned to the department received awards and recognition throughout the medical community. Lt. Jessica Stambaugh received the Navy and Marine Corps Achievement Medal for professional achievement for quality improvement research.

Michael Thomas, orthopedic technician, fits a lower extremity splint onto Master Sgt. Craig Benson, 940th Aerospace Medicine Squadron Reservist, at the Naval Medical Center San Diego. The NMCSD is a full scale hospital that treats more than 100,000 patients and has notable clinical and research programs. *U.S. Air Force photo by Tech. Sgt. Kenneth McCann*

Lt. Ethan Bernstein and Lt. Cmdr. Jennifer Smith received the 2019 Louise House Award from the Society of Military Orthopedic Surgeons for their research on reducing opioid use in postoperative orthopedic patients in December 2019.

Additionally, the orthopedics department scored a 97% overall satisfaction rating, up from 94% from FY18, from the Joint Outpatient Experience Survey (JOES), a Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey that reports on patient healthcare experiences, by the Agency for Health Research and Quality (AHRQ).

dvidshub.net

Active Duty
ORTHOPEDICS

Musculoskeletal Injury Top Threat to Airmen Readiness, Lethality: Interventions Support Fitness Improvement Plan

By the Air Force Materiel Command

Mission readiness is key to the execution of the National Defense strategy, and the Air Force Materiel Command is operating on the front lines ensuring Airmen are fit to fight.

The Department of Defense defines readiness as the ability of military forces to fight and meet the demands of assigned missions. A closer look at possible reasons for low readiness in the ranks of deployable Airmen shines light on the number of musculoskeletal injuries in the form of fractures, strains and sprains and their impact.

A review of the Air Force Materiel Command Community Action Plan 2019-2021 overview listed musculoskeletal injury as the number one reason for lost duty days in the U.S. Air Force and improving the physical health readiness of military members as a priority goal for the command.

"Musculoskeletal injury has been identified as the top threat to service member's readiness and lethality, with physical training listed as the leading cause of injuries among service members," said Maj. Gen. Carl Schaefer, deputy commander, AFMC.

According to the Defense Health Agency, physical training injuries are significant to the Air Force because of their potential for lost duty or training time, costs and military readiness. This also leads to a reduction in the number of Airmen ready to deploy at any point in time.

Injured members can be pulled from unit assignments, training qualifications can expire and equipment can break. When readiness suffers, the risks to forces increase.

To impact the causes of these new realities, AFMC's Health Promotion Coordinators have implemented a two-intervention plan. The first intervention requires all Physical Training Leaders to complete a standardized four-hour PTL workshop before conducting commander-approved unit physical training.

The second intervention is for military members who receive a second consecutive unsatisfactory PT assessment score. These Airmen will be required to participate in a face-to-face Fitness Improvement Program class with the installation HPC.

Airmen participate in a group fitness exercise. *Photo courtesy of the U.S. Air Force*

A commander can refer a member for the FIP class after only one test failure, if an intervention is believed necessary.

Schaefer refers to this as "the initial phase to improve the physical health of our service members."

The HPCs at each installation have been provided the training, resources and materials to assist their respective installations.

In addition, new AFMC Physical Training test rules, which took effect Jan. 20, allow Airmen who are current on their fitness assessments to attempt up to three mock diagnostic assessment tests before their PT test due date.

The assessments provide Airmen with an idea of their current fitness level and where they may need to improve prior to their test due date. This is part of an overall effort to continue to encourage a culture of fitness across the command.

"When you improve the health of our military members, fitness restrictions decrease and readiness across AFMC increases," said Schaefer.

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Indication and Important Safety Information

Indication

ZILRETTA® (triamcinolone acetonide extended-release injectable suspension) is indicated as an intra-articular injection for the management of osteoarthritis pain of the knee.

Limitation of Use: The efficacy and safety of repeat administration of ZILRETTA have not been demonstrated.

Contraindication

ZILRETTA is contraindicated in patients who are hypersensitive to triamcinolone acetonide, corticosteroids, or any components of the product.

Warnings and Precautions

- **Intra-articular Use Only:** ZILRETTA has not been evaluated and should not be administered by epidural, intrathecal, intravenous, intraocular, intramuscular, intradermal, or subcutaneous routes. Serious events have been reported with epidural and intrathecal administration of corticosteroids and none are approved for this use. ZILRETTA should not be considered safe for epidural or intrathecal administration.
- **Hypersensitivity Reactions:** Rare instances of anaphylaxis, including serious cases, have occurred in patients with hypersensitivity to corticosteroids.
- **Joint Infection and Damage:** A marked increase in pain accompanied by local swelling, restriction of joint motion, fever, and malaise are suggestive of septic arthritis. Examine joint fluid to exclude a septic process. If diagnosis is confirmed, institute appropriate antimicrobial therapy. Avoid injecting corticosteroids into a previously infected or unstable joint. Intra-articular administration may result in damage to joint tissues.
- **Increased Risk of Infections:** Infection with any pathogen in any location of the body may be associated with corticosteroid use. Corticosteroids may increase the susceptibility to new infection and decrease resistance and the ability to localize infection.
- **Alterations in Endocrine Function:** Corticosteroids can produce reversible hypothalamic-pituitary-adrenal axis suppression, with potential for adrenal insufficiency after withdrawal of treatment, which may persist for months. In situations of stress during that period, institute corticosteroid replacement therapy.
- **Cardiovascular and Renal Effects:** Corticosteroids can cause blood pressure elevation, salt and water retention, and increased potassium excretion. Monitor patients with congestive heart failure, hypertension, and renal insufficiency for edema, weight gain, and electrolyte imbalance. Dietary salt restriction and potassium supplementation may be needed.
- **Increased Intraocular Pressure:** Corticosteroid use may be associated with increased intraocular pressure. Monitor patients with elevated intraocular pressure for potential treatment adjustment.
- **Gastrointestinal Perforation:** Corticosteroid administration may increase risk of gastrointestinal perforation in patients with certain GI disorders and fresh intestinal anastomoses. Avoid corticosteroids in these patients.
- **Alterations in Bone Density:** Corticosteroids decrease bone formation and increase bone resorption. Special consideration should be given to patients with or at increased risk of osteoporosis prior to treatment.
- **Behavior and Mood Disturbances:** Corticosteroids may cause adverse psychiatric reactions. Prior to treatment, special consideration should be given to patients with previous or current emotional instability or psychiatric illness. Advise patients to immediately report any behavior or mood disturbances.

Adverse Reactions

The most commonly reported adverse reactions (incidence ≥1%) in clinical studies included sinusitis, cough, and contusions.

Please see brief summary of full Prescribing Information on the following page.

July 2020. Z-01226

ZILRETTA® (triamcinolone acetonide extended-release injectable suspension) for intra-articular use

BRIEF SUMMARY OF PRESCRIBING INFORMATION: See package insert for full Prescribing Information.

1. INDICATIONS AND USAGE

ZILRETTA is indicated as an intra-articular (IA) injection for the management of osteoarthritis (OA) pain of the knee.

Limitation of Use: The efficacy and safety of repeat administration of ZILRETTA have not been demonstrated.

4. CONTRAINDICATION

ZILRETTA is contraindicated in patients who are hypersensitive to triamcinolone acetonide (TA), corticosteroids (CSs), or any components of the product.

5. WARNINGS AND PRECAUTIONS

5.1 Warnings and Precautions Specific for ZILRETTA ZILRETTA has not been evaluated and should not be administered by the following routes: epidural, intrathecal, intravenous, intraocular, intramuscular, intradermal, or subcutaneous.

5.2 Serious Neurologic Adverse Reactions With Epidural and Intrathecal Administration Serious neurologic events, some resulting in death, have been reported with epidural injection of CSs. Specific events reported include, but are not limited to, spinal cord infarction, paraplegia, quadriplegia, cortical blindness, and stroke. These serious neurologic events have been reported with and without use of fluoroscopy. Reports of serious medical events have been associated with the intrathecal route of CS administration. The safety and effectiveness of epidural and intrathecal administration of CSs have not been established, and CSs are not approved for this use. In particular, the formulation of ZILRETTA should not be considered safe to use for epidural or intrathecal administration.

5.3 Hypersensitivity Reactions Rare instances of anaphylaxis have occurred in patients with hypersensitivity to CSs. Cases of serious anaphylaxis, including death, have been reported in individuals receiving TA injection, regardless of the route of administration. Institute appropriate care if an anaphylactic reaction occurs.

5.4 Joint Infection and Damage IA injection of a CS may be complicated by joint infection. A marked increase in pain accompanied by local swelling, further restriction of joint motion, fever, and malaise are suggestive of septic arthritis. If this complication occurs and a diagnosis of septic arthritis is confirmed, institute appropriate antimicrobial therapy. Avoid injection of a CS into an infected site. Local injection of a CS into a previously infected joint is not usually recommended. Examine any joint fluid present to exclude a septic process. CS injection into unstable joints is generally not recommended. IA injection may result in damage to joint tissues.

5.5 Increased Risk of Infections Intra-articularly injected CSs are systemically absorbed. Patients who are on CSs are more susceptible to infections than healthy individuals. There may be decreased resistance and inability to localize infection when CSs are used. Infection with any pathogen (viral, bacterial, fungal, protozoan, or helminthic) in any location of the body may be associated with the use of CSs alone or in combination with other immunosuppressive agents. These infections may be mild to severe. With increasing doses of CSs, the rate of occurrence of infectious complications increases. CSs may also mask some signs of current infection. Advise patients to inform their health care provider (HCP) if they develop fever or other signs or symptoms of infection. Advise patients who have not been vaccinated to avoid exposure to chicken pox or measles. Instruct patients to contact their HCP immediately if they are exposed.

5.6 Alterations in Endocrine Function CSs can produce reversible hypothalamic-pituitary-adrenal axis suppression, with potential for adrenal insufficiency after withdrawal of treatment, which may persist for months. In situations of stress during that period (as in trauma, surgery, or illness), institute CS replacement therapy. Metabolic clearance of CSs is decreased in hypothyroid patients and increased in hyperthyroid patients.

5.7 Cardiovascular Effects CSs can cause elevations of blood pressure, salt and water retention, and increased excretion of potassium. These effects are less likely to occur with synthetic derivatives. Monitor patients with congestive heart failure (CHF) or hypertension for signs of edema, weight gain, and imbalance in serum electrolytes. Dietary salt restriction and potassium supplementation may be necessary.

5.8 Renal Effects CSs can cause salt and water retention, and increased excretion of potassium. These effects are less likely to occur with synthetic derivatives. All CSs increase calcium excretion. Monitor patients with renal insufficiency for signs of edema, weight gain, and imbalance in serum electrolytes. Dietary salt restriction and potassium supplementation may be necessary.

5.9 Increased Intraocular Pressure CS use may be associated with development or exacerbation of increased intraocular pressure. Monitor patients with elevated intraocular pressure for potential treatment adjustment.

5.10 Gastrointestinal (GI) Perforation CS administration is associated with increased risk of GI perforation in patients with certain GI disorders such as active or latent peptic ulcers, diverticulosis, diverticulitis, ulcerative colitis, and in patients with fresh intestinal anastomoses. Avoid CSs in these patients because signs of peritoneal irritation following GI perforation may be minimal or absent.

5.11 Alterations in Bone Density CSs decrease bone formation and increase bone resorption through their effect on calcium regulation and inhibition of osteoblast function. Special consideration should be given to patients with or at increased risk of osteoporosis (eg, postmenopausal women) before initiating CS therapy.

5.12 Behavioral and Mood Disturbances CS use may be associated with new or aggravated adverse psychiatric reactions ranging from euphoria, insomnia, mood swings, and personality changes to severe depression and frank psychotic manifestations. Special consideration should be given to patients with previous or current emotional instability or psychiatric illness before initiating CS therapy. Advise patients and/or caregivers to immediately report any new or worsening behavior or mood disturbances to their HCP.

6. ADVERSE REACTIONS

6.1 Clinical Trials Experience Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in clinical trials of a drug cannot be directly compared to rates in clinical studies of another drug and may not reflect rates observed in practice. The data below reflect exposure to a single 32mg IA injection of ZILRETTA in clinical studies in patients with moderate to severe pain due to knee OA. Clinical studies included randomized, double-blind, parallel-group, placebo- and/or active-controlled, and pharmacokinetic/pharmacodynamic studies with follow-up ranging from 6–24 weeks. 424 patients received ZILRETTA; 262 received placebo. The most commonly reported treatment-emergent adverse reactions (incidence ≥1% with ZILRETTA) in the ZILRETTA vs placebo arms were sinusitis, cough, and contusions (2% vs 1% each) and in the injected knee were joint swelling (3% vs 2%) and contusions (2% vs 1%). Overall, the incidence and nature of adverse reactions were similar to those observed with placebo.

The safety of repeat administration of ZILRETTA was evaluated in a multicenter, open-label, single-arm study in patients with OA knee pain. 179 patients received a repeat injection on or after Week 12 (median 16.6 weeks) and were followed for 52 weeks from initial injection. As assessed by adverse event rates for the periods of baseline to second dose and second dose to the comparable period after the second dose, there were higher rates of reported mild to moderate arthralgia after the second dose (16%) than after the first dose (6%). Data from this study are insufficient to fully characterize the safety of repeat administration of ZILRETTA.

6.2 Post-marketing Experience The following adverse reactions (alphabetical by body system) have been identified during post-approval use of ZILRETTA. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. Endocrine: Increased blood glucose (in diabetic patients). General and administration site conditions: Pain, including injection-site pain or discomfort, and leg pain. Immune system: Hypersensitivity reactions including pruritis, rash, angioedema, anaphylaxis. Infections and Infestations: Septic arthritis. Musculoskeletal: Arthralgia, joint swelling or effusion, muscle spasms. Nervous system: Headache. Reproductive system: Postmenopausal vaginal bleeding (similar to a menstrual period). Skin and Subcutaneous Tissue: Pruritis.

6.3 Corticosteroid Adverse Reactions The following adverse reactions (alphabetical by body system) are from voluntary reports or clinical studies of CSs. Because some of these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. Anaphylactic reactions: Anaphylaxis including death, angioedema. Cardiovascular: Bradycardia, cardiac arrest, cardiac arrhythmias, cardiac enlargement, circulatory collapse, CHF, hypertension, fat embolism, hypertrophic cardiomyopathy in premature infants, myocardial rupture following recent myocardial infarction, pulmonary edema, syncope, tachycardia, thromboembolism, thrombophlebitis, vasculitis. Dermatologic: Acne, allergic dermatitis, cutaneous and subcutaneous atrophy, dry scaly skin, ecchymoses and petechiae, edema, erythema, hyperpigmentation, hypopigmentation, impaired wound healing, increased sweating, lupus erythematosus-like lesions, purpura, rash, sterile abscess, striae, suppressed reactions to skin tests, thin fragile skin, thinning scalp hair, urticaria. Endocrine: Decreased carbohydrate and glucose tolerance, development of Cushingoid state, glycosuria, hirsutism, hypertrichosis, increased requirements for insulin or oral hypoglycemic agents in diabetes, manifestations of latent diabetes mellitus, menstrual irregularities, secondary adrenocortical and pituitary unresponsiveness (particularly in times of stress as in trauma, surgery, or

continued on next page

illness), suppression of growth in pediatric patients. Fluid and electrolyte disturbances: Congestive heart failure (CHF) in susceptible patients, fluid retention, sodium retention. Gastrointestinal (GI): Abdominal distention, bowel/bladder dysfunction (after intrathecal administration), elevation in serum liver enzyme levels (usually reversible upon discontinuation), hepatomegaly, increased appetite, nausea, pancreatitis, peptic ulcer with possible perforation and hemorrhage, perforation of the small and large intestine (particularly in patients with inflammatory bowel disease), ulcerative esophagitis. Metabolic: Negative nitrogen balance due to protein catabolism. Musculoskeletal: Aseptic necrosis of femoral and humeral heads, calcinosis (following intra-articular [IA] or intralesional use), Charcot-like arthropathy, loss of muscle mass, muscle weakness, osteoporosis, pathologic fracture of long bones, post-injection flare (following IA use), steroid myopathy, tendon rupture, vertebral compression fractures. Neurologic/Psychiatric: Convulsions, depression, emotional instability, euphoria, headache, increased intracranial pressure with papilledema (pseudotumor cerebri) usually following discontinuation of treatment, insomnia, mood swings, neuritis, neuropathy, paresthesia, personality changes, psychiatric disorders, vertigo. After intrathecal administration—arachnoiditis, meningitis, paraparesis/paraplegia, sensory disturbances. After epidural administration—spinal cord infarction, paraplegia, quadriplegia, cortical blindness, stroke (including brainstem). Ophthalmic: Exophthalmos, glaucoma, increased intraocular pressure, posterior subcapsular cataracts, rare instances of blindness associated with periocular injections. Other: Abnormal fat deposits, decreased resistance to infection, hiccups, increased or decreased motility and number of spermatozoa, malaise, moon face, weight gain.

7. DRUG INTERACTIONS

No drug–drug interaction studies have been conducted with ZILRETTA® (triamcinolone acetonide extended-release injectable suspension). Drug interactions associated with systemic corticosteroids (CSs) include the following. Aminoglutethimide: Aminoglutethimide may lead to a loss of CS-induced adrenal suppression. Amphotericin B injection and potassium-depleting agents: When CSs are administered concomitantly with potassium-depleting agents (ie, amphotericin B, diuretics), observe patients closely for development of hypokalemia. There have been cases reported in which concomitant use of amphotericin B and hydrocortisone was followed by cardiac enlargement and CHF. Antibiotics: Macrolide antibiotics have been reported to cause a significant decrease in CS clearance. Anticholinesterases: Concomitant use of anticholinesterase agents and CSs may produce severe weakness in patients with myasthenia gravis. If possible, withdraw anticholinesterase agents at least 24 hours before initiating CS therapy. Anticoagulants, oral: Co-administration of CSs and warfarin usually results in inhibition of response to warfarin, though there have been some conflicting reports. Therefore, monitor coagulation indices frequently to maintain desired anticoagulant effect. Antidiabetics: Because CSs may increase blood glucose concentrations, dosage adjustments of antidiabetic agents may be required. Antitubercular drugs: Serum concentrations of isoniazid may be decreased. CYP3A4 inducers (eg, barbiturates, phenytoin, carbamazepine, and rifampin): Drugs that induce hepatic microsomal drug-metabolizing enzyme activity may enhance metabolism of CSs and require that the CS dosage be increased. CYP3A4 inhibitors (eg, ketoconazole): Ketoconazole, a strong CYP3A4 inhibitor, has been reported to decrease the metabolism of certain CSs by up to 60%, leading to an increased risk of CS side effects. Cholestyramine: Cholestyramine may increase the clearance of CSs. Cyclosporine: Increased activity of cyclosporine and CSs may occur when used concurrently. Convulsions have been reported with this concurrent use. Digitalis glycosides: Patients on digitalis glycosides may be at increased risk of arrhythmias due to hypokalemia. Estrogens, including oral contraceptives: Estrogens may decrease the hepatic metabolism of certain CSs, thereby increasing their effect. Nonsteroidal anti-inflammatory drugs (NSAIDs): Concomitant use of aspirin (or other NSAIDs) and CSs increases the risk of GI side effects. Aspirin should be used cautiously in conjunction with CSs in hypoprothrombinemia. Clearance of salicylates may be increased with concurrent use of CSs. Skin tests: CSs may suppress reactions to allergy-related skin tests. Vaccines: Patients on prolonged CS therapy may exhibit a diminished response to toxoids and live or inactivated vaccines due to inhibition of antibody response. CSs may also potentiate the replication of some organisms contained in live attenuated vaccines. If possible, defer routine administration of vaccines or toxoids until CS therapy is discontinued.

8. USE IN SPECIFIC POPULATIONS

8.1 Pregnancy Risk Summary: There are no data regarding use of ZILRETTA in pregnant women to inform a drug-associated risk of adverse developmental outcomes. Published studies on the association between CSs and fetal outcomes have reported inconsistent findings and have important methodological limitations. The majority of published literature with CS exposure during pregnancy includes oral, topical, and inhaled dosage formulations; therefore, the applicability of these findings to a single IA injection of triamcinolone acetonide (TA) is limited. In animal reproductive studies from the published literature, pregnant mice, rats, rabbits, or primates administered TA during the period of organogenesis at doses that produced exposures less than the maximum recommended human dose (MRHD) caused resorptions, decreased fetal body weight, craniofacial, and/or other abnormalities such as omphalocele. The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the US general population, the estimated risk of major birth defects and miscarriage in clinically recognized pregnancies is 2–4% and 15–20%, respectively.

8.2 Lactation Risk Summary: There are no available data on presence of TA in human or animal milk, effects on the breastfed infant, or effects on milk production. However, CSs have been detected in human milk and may suppress milk production. It is not known whether IA administration of ZILRETTA could result in sufficient systemic absorption to produce detectable quantities in human milk. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for ZILRETTA and any potential adverse effects on the breastfed infant from ZILRETTA.

8.3 Females and Males of Reproductive Potential CSs may result in menstrual pattern irregularities such as deviations in timing and duration of menses and an increased or decreased loss of blood.

8.4 Pediatric Use The safety and effectiveness of ZILRETTA in pediatric patients have not been established. The adverse effects of CSs in pediatric patients are similar to those in adults. Carefully observe pediatric patients, including weight, height, linear growth, blood pressure, intraocular pressure, and clinical evaluation for the presence of infection, psychosocial disturbances, thromboembolism, peptic ulcers, cataracts, and osteoporosis. Weigh potential growth effects of treatment against clinical benefits obtained and availability of treatment alternatives.

8.5 Geriatric Use Of the total number of patients administered 32mg ZILRETTA in clinical studies (N=424), 143 patients were ≥65 years old. No overall differences in safety or effectiveness were observed between elderly and younger subjects, and other reported clinical experience with TA has not identified differences in responses between elderly and younger patients. However, greater sensitivity of some older individuals cannot be ruled out.

13. NONCLINICAL TOXICOLOGY

13.2 Animal Toxicology and/or Pharmacology Single and repeat administrations (1 injection every 3 months for a total of 3 injections) of ZILRETTA in non-arthritic knee joints of healthy dogs have been studied at ~1.9xMRHD of 32mg (based on estimated drug concentrations within the knee joints). ZILRETTA microspheres were degraded by approximately 4- and 6-months post dosing in single and repeat dose studies, respectively. Single administration resulted in slightly increased incidence, severity (minimal to slight), and/or duration of microscopic changes (infiltration of macrophages, lymphocytes, plasma cells, and fibrosis) and decreased Safranin O staining (decreased proteoglycan content in knee cartilage) vs administration of an equivalent dose of immediate-release (IR) TA. These responses were mostly reversed after 6 to 9 months post injection. Repeat administration resulted in an increase in incidence, severity (minimal to slight), and duration of microscopic changes (infiltration of macrophages, lymphocytes, plasma cells, neutrophils; fibrosis; neovascularization; granulation tissue; and debris) and decreased Safranin O staining (decreased proteoglycan content in knee cartilage) vs the equivalent dose of IR TA. These local responses were still reversing at 6 months post the last injection. No effect on the animals according to observations related to gait/walking, pain/discomfort in injected knee, local swelling, local redness, or local tenderness were noted. The clinical relevance of these findings in the arthritic knee is unknown.

The Brief Summary is based on the ZILRETTA Prescribing Information
Part Number: 60-009-04, Version 4, 01/2020

Manufactured for Flexion Therapeutics, Inc.,
10 Mall Rd., Suite 301, Burlington, MA 01803

flexion

v4 January 2020. Z-00029v2

Active Duty
OTOLARYNGOLOGY

Head and Neck Cancer on the Rise

By Mrs. Alofagia Oney (Regional Health Command Europe)

In honor of April's National Head and Neck Cancer Awareness Month, medical providers from the Ear, Nose and Throat Clinic, Oral Surgery Clinic and Speech-Language Pathology Department at Landstuhl Regional Medical Center held a head and neck cancer screening event at both the hospital and the Ramstein Exchange Apr. 17 where over 130 people from the community were evaluated.

During the five minute screenings, patients were examined for signs and symptoms of head and neck cancers and were provided education on ways to detect and prevent them.

"The patient demographic has changed, mostly due to the rise in the frequency of the Human Papilloma virus, or HPV, which is associated with head and neck cancers" said Maj. Whitney Pafford, an otolaryngologist at the LRMC ENT clinic. "Whereas we used to see a predominance of head and neck cancers in older folks, we are now seeing them in people of all ages, even as young as 19, who have never smoked or drank alcohol a day in their lives."

U.S. Air Force doctor (Maj.) Whitney Pafford, Otolaryngologist at Landstuhl Regional Medical Center's Ear, Nose and Throat Clinic, checks a patient for irregularities or signs of cancer. *Photo coutesy of LRMC*

Risk factors for head and neck cancers include tobacco, alcohol — the combination of smoking and drinking alcohol can more than double a person's risk — genetics, ultraviolet exposure from the sun, poor dental hygiene and viruses like HPV, among others.

According to the Centers for Disease and Prevention Control, more than 110,000 people in the United States over the age of 18 are diagnosed with head and neck cancer, and more than 40 percent of those who are diagnosed die within five years.

Head and neck cancers have surpassed cervical cancer in HPV related malignancies. Nearly 80 percent of these patients are men who are unaware they were exposed to the virus, according to the CDC.

"The good news is that early diagnosis can more than double a patient's chance of survival, up to nearly 90 percent," Pafford said. "The vaccine against HPV is approved for children as early as 11 years old, and when the HPV vaccine is received before exposure, it can prevent about 70 to 90 percent of these cancers."

During the event, providers looked for a variety of signs and symptoms such as mouth sores, pain or difficulty swallowing, red or white patches in the mouth, recurrent bleeding in the nose or mouth and numbness in certain parts of the face.

"It's important that people who experience some of the signs or symptoms don't jump to conclusions and automatically assume they have a head and neck cancer," said Pafford. "However, lesions, lumps or persistent symptoms for more than 14 days should be evaluated by a professional."

In addition to providers from the ENT clinic, Tracey Fischer, a speech pathologist at LRMC, was also present at the screening event to examine patients. While speech-language pathologists typically treat patients who have problems with speech, language and cognition, they are also specially trained to identify, evaluate and treat dysfunction of the muscles in the head, neck, tongue and mouth.

While the Head and Neck Cancer Screening event only lasted for one day, Pafford encourages people to either consult their primary care providers or conduct a head and neck cancer self-exam if they have concerns.

"Education is a big part of the process of early detection," Pafford said. "The more you know about the signs and symptoms, the better you and your providers are able to properly receive treatment if you are diagnosed."

army.mil

Active Duty
PEDIATRICS

Advancing the Standard of Care, One Small Patient at a Time

By Kirstin Grace-Simons (Madigan Army Medical Center)

When a child gets sick, a family is thrown into turmoil. There is confusion, chaos, pain and a substantial amount of fear. In the first month after a startling diagnosis, a family accepts a new reality as the finer details of dealing with an illness reveal themselves. The care team starts a treatment plan and the family begins to get a feel for how things might unfold. Those first 30 days were everything to the Dehn family.

Cora, a shy and petite 5-year-old, isn't sure why her dad keeps telling people about the rash that developed on her face last October. After getting a call from the daycare on base about it and the fever that accompanied it, her dad, Sgt. 1st Class Christopher Dehn, an inspector general with I Corps, took her to the Emergency Department at Madigan Army Medical Center on Joint Base Lewis-McChord, Wash. She's spent a lot of time at Madigan since.

After a diagnosis of impetigo, a skin infection, she got some antibiotics and a cream. The rash went away. But, shortly, it returned.

"I was kind of worried about it. So, I brought her back to the (ED); that's when they did the bloodwork and that's when we found out that she had leukemia," said Chris. "That's when the whole journey began."

"Her leukemia is B-cell acute lymphoblastic leukemia, B-ALL. It is the most common type of leukemia in childhood; leukemia is the most common type of cancer in childhood," explained Col. (Dr.) David Harper, the chief of Inpatient Services for the Department of Pediatrics and a physician in the Pediatric Hematology/Oncology Clinic.

Harper also acknowledged that childhood cancers can be a bit elusive at first. Cora's rash wasn't entirely unusual as a first presentation of her underlying leukemia, which is a rare condition. It is, therefore, pretty common for there to be a handful of engagements with the healthcare system before a cancer diagnosis is determined.

On that second ED visit, lab work was done to dig deeper into what was causing Cora to feel ill and not be able to heal from the rash.

"After confirming her blood counts, she was quickly admitted to the PICU (Pediatric Intensive Care Unit)," said Maj. (Dr.) Brandon Woods, the medical director of the PICU.

Cora Dehn with her dad, Sgt. 1st Class Christopher Dehn, an inspector general with I Corps, her mom, Staff Sgt. Eunji Dehn, a cryptologic linguist with 2nd Battalion, 1st Special Forces Group, and one of the physicians who helped diagnose her leukemia and get her treatment started, Maj. (Dr.) Brandon Woods, the medical director of the Pediatric Intensive Care Unit of Madigan Army Medical Center on Joint Base Lewis-McChord, Wash. Cora has led the way in pediatric cancer care as the first pediatric patient to have nitrous oxide sedation for her frequent lumbar punctures. Madigan is the only military treatment facility that uses nitrous oxide with pediatric patients in an effort to avoid the unknown risks of long-term propofol use, which is the standard of care for this procedure otherwise. *Photo Credit, Ryan Graham*

Well under the standard turnaround time, Cora's treatment was underway. "During her initial 15 hours in the PICU, she received antibiotics, transfusions, a lumbar puncture, a bone marrow biopsy with aspirate to confirm diagnosis, and a PICC line was placed so she could receive chemotherapy," detailed Woods.

Harper clarified that 15 hours is a short period of time for all of that to occur. "That requires the institution coming together. We need Lab, Pathology, Pharmacy, PICU and us (Pediatric Hematology/Oncology) all doing things," Harper said.

Though Cora's treatment was moving quickly, it was just the time needed for Cora's mom, Staff Sgt. Eunji Dehn, a cryptologic linguist with 2nd Battalion, 1st Special Forces Group, to make it back home.

"He dealt with this by himself; I was deployed," said Eunji of Chris who was taking care of Cora and her sister, who is nine, while Eunji was in Afghanistan. "My unit was really supportive, they sent me right away."

Col. (Dr.) Melissa Forouhar, the chief of the Pediatric Hematology/Oncology Clinic at Madigan Army Medical Center on Joint Base Lewis-McChord, Wash., performs a lumbar puncture on Cora Dehn as Maj. (Dr.) Brandon Woods, the medical director of the Pediatric Intensive Care Unit and Heather Hill, a nurse with Madigan's Pediatric Sedation Service, assist. Cora, whose leukemia is in remission, has led the way in pediatric cancer care as the first pediatric patient to have nitrous oxide sedation for her frequent lumbar punctures. Madigan is the only military treatment facility that uses nitrous oxide with pediatric patients in an effort to avoid the unknown risks of long-term propofol use, which is the standard of care for this procedure otherwise. *Photo Credit, Ryan Graham*

Those early days of Cora's diagnosis and treatment were a bit of a haze for the family. "The timeline's kind of blurry because once we got here, I didn't sleep for a couple days," noted Chris. "I also have zero memory; we weren't in our right minds," confirmed Eunji. Cora spent a few days under the watchful eyes of Woods, Maj. Michelle Fredach, a registered emergency nurse, and the PICU team as they helped her clear her infection. Once free of that concern, Cora moved to 4 North for 21 days as her pediatric oncology team got her treatment plan underway.

From ED to PICU to 4N to Peds Hem/Onc, the Dehns found themselves in the good hands of a whole care team committed to their family. "I came back on a weekend," said Eunji. "Dr. Harper was like, 'I will come in, I'm pretty sure you want to hear it from me.'"

"Dr. Woods from PICU as well. I don't think either one of them were on their shift, but it didn't matter. When she came back, they both made themselves available to talk," added Chris.

Cora is doing well now. "At the end of the one month — the induction phase — they do another bone marrow aspiration to see, and she went into remission at the end of that 28 days. Obviously, she's still doing treatment to make sure she doesn't relapse," said Chris.

As Cora nears the maintenance phase of her treatment, her weekly appointments are set to reduce to monthly.

"We were told to expect probably two to three years for treatment. I know each patient is unique and different," Eunji said.

The family continues to lean on the whole-family care that helped them through those first days. "We just do what Dr. Harper and Dr. (Col. Melissa) Forouhar (the chief of the Pediatric Hematology/Oncology Clinic) say," admitted Eunji. "She's doing great. No severe reaction as far as any of the chemo meds she's exposed to so far, so we're grateful for that."

Not only did Cora's treatment get underway quickly, it has proven a bellwether too.

"Over 90 percent of kids with the kind of leukemia she has will be cured," Harper explained. "But, an important part of that is treating the central nervous system so the leukemia doesn't come back there. We do that with chemotherapy, but we have to give it into the spinal fluid. So, they get a lot of spinal taps."

The standard of care for that procedure has been to sedate children using the drug propofol.

"We don't know the risks of multiple propofol sedations long-term. Kids who have been treated for leukemia overall have an increase in incidence of attention problems and some other problems later on and we don't know if that's medications or if that's sedations, or all of these things together," described Harper.

An alternative to propofol is nitrous oxide. Many people know it from getting it in the dentist's chair as a kid themselves.

Madigan's Sedation Service has developed the use of nitrous oxide in a number of areas in the hospital to include in obstetrics for laboring moms. The service has been growing its use with kids as well. Cora was the first patient to try it out during a lumbar puncture.

Having first used it on her to biopsy her rash, her care team went into a lumbar puncture with a plan to use it and have the propofol ready should the nitrous oxide not work well.

"But, it went very well," said Harper. "We've now offered this to other families."

Madigan is, in fact the only military treatment facility that offers nitrous oxide for pediatric patients, added Woods.

"By utilizing nitrous oxide, she does not have to be fasting prior to her procedures," Woods said.

Harper noted that, unlike with propofol, she remains conscious and is able to respond. Plus, her recovery from each procedure is quicker, making the next few years she will be having these treatments less daunting.

From those anxious first days to leading the way for cancer care for other kids, Cora's situation is looking up.

"That first month when we didn't know what was going on. Now, we're more hopeful because she's doing so great," said Eunji.

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Active Duty
PHARMACY

Curbside Pharmacy Services Garner Praise from Beneficiaries

By Lori Newman

Since its inception, Brooke Army Medical Center pharmacies have safely served more than 20,800 beneficiaries, and 59th Medical Wing pharmacies have served over 18,500 beneficiaries.

"Due to the COVID crisis, the BAMC Pharmacy team quickly came together on very short notice and successfully made the new curbside pharmacy service a reality in less than 48 hours," said Army Col. Stacey Causey, BAMC Department of Pharmacy chief. "This showed me that my team took this crisis very seriously and stepped up to do what was needed to ensure the safety of the patients visiting the pharmacy."

BAMC's curbside service began March 26 at the Main Pharmacy, CPT Jennifer M. Moreno Clinic, Taylor Burk Clinic and Fort Sam Community Pharmacy. Additionally, the Schertz and Westover Clinics offer drive thru pharmacy services weekdays 7:30 a.m. to 4:30 p.m.

Jose Dominguez, pharmacy technician at the Fort Sam Houston Community pharmacy, collects a patient's prescription at the drop-off point during curbside operations, March 26, 2020. Brooke Army Medical Center implemented curbside pharmacy drop-off and pick-up operations to minimize foot traffic in the organization. Since the start of curbside operations, more than 20,800 vehicles have utilized this COVID-19 health protection measure at BAMC Main, Capt. Jennifer M. Moreno, Westover Hills Medical Home, Schertz Medical Home, Taylor Burk (Camp Bullis) and Fort Sam Community pharmacies. *Photo Credit: Robert A. Whetstone, BAMC Public Affairs*

In order to better service our JBSA-Lackland beneficiaries, the pharmacy consolidated its operations. The JBSA-Lackland Satellite Pharmacy and Lackland Commissary are temporarily closed. A one stop pharmacy curb-side service was implemented on March 30 at the Wilford Hall Ambulatory Surgical Center. The pharmacy curb-side service hours of operation are weekdays 8 a.m. to 3 p.m.

Across the city, the Gateway Bulverde Clinic and JBSA-Randolph Clinic pharmacies are open Monday through Friday from 8 a.m. to 4 p.m. and JBSA-Randolph Satellite (BX) Pharmacy is available for refill pick up only during that time.

"I am thankful to be a part of the 59 MDW, the support we (the pharmacy team) have received from facilities, systems, manpower and leadership has made this pharmacy curb-side service a success," said Lt. Col. Christina Fairley, 59th MDW pharmacy flight commander. "I am especially proud of the pharmacy staff, every Airman has contributed with innovative ideas and process improvement to make our operations run smoothly. They are the heroes."

Causey said the curbside venture has been a big success for the pharmacy and organization. "The patients are very grateful for the curbside pharmacy service and have provided numerous compliments to the pharmacy team for a job well done."

"Love it! I was there less than 10 minutes from check-in to receiving my prescriptions," said Tyrone Taylor. "The young Soldier who was the runner had a definite sense of urgency and verified my info and medications all within 10 minutes."

"I drove up, there was quite a line of cars," Gail Williams said. "The line went pretty quickly and everything was organized and smooth. It is really appreciated!"

Lynn Thompson says her husband, Paul, also thought it worked well. "He was in and out of the Jennifer Moreno Clinic in about five minutes," Thompson said.

Ben Linduff agrees. "What a great idea, feel so blessed to have this service."

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Active Duty
PHYSICAL MEDICINE & REHABILITATION

New Special Operations Outdoor Training Facility Allows Safe Workouts

By Staff Sgt. Steven Colvin, Defense.gov

U.S. Special Operations Command Central has opened a new outdoor human performance facility at MacDill Air Force Base, Florida, providing the opportunity for safe and socially distant workouts while allowing a venue to maintain personal wellness.

U.S. Special Operations Command-Central personnel participate in the initial exercise session after the ribbon cutting ceremony of the new human performance outdoor facility located on the SOCCENT campus at MacDill Air Force Base, Tampa, Fla., June 3, 2020. *Photo by U.S. Army SSG Steven M. Colvin*

Officials deemed it necessary to open the outdoor facility during a time where most public fitness facilities were closed due to COVID-19.

Navy Rear Adm. H. Wyman Howard III, the Soccent commander, cut the ribbon to open the facility June 3.

‘‘This is a great moment for us to be able to expand the [human performance] facilities,’’ Howard said. ‘‘With this new workout area, our teammates will have ample room to perform workouts necessary to keep the team fit for the fight.’’

The facility is nearly the length of an American football field; stretching 247 feet, with half of the flooring made of synthetic turf and the remainder made of rubber matting for the equipment workout area. New lighting and industrial fans were installed throughout the facility, which also includes a purified drinking station. The open-air, yet covered, space allows athletes to work out without being exposed to the direct sunlight.

After the ceremony, Mike Renteria, Soccent’s strength and conditioning coach, invited a small group of personnel to stay for the initial workout session at the new facility.

This workout area is the first expansion phase of the human performance facilities, with plans for two more buildings on the Soccent campus to be converted as indoor facilities.

‘‘The expansion of our Human Performance Training Center is going to be a world-class facility, with the best trainers, for the best warriors in the world,’’ said Army Maj. Juan Salas, the headquarters commandant for Soccent. ‘‘It will serve as the pinnacle for all special operations forces while stationed at MacDill Air Force Base.’’

The new U.S. Special Operations Command-Central human performance outdoor facility was dedicated at MacDill Air Force Base, Tampa, Fla., June 3, 2020. The new facility awaits the final phase of its transformation - the installation of equipment. *Photo by U.S. Army SSG Steven M. Colvin*

The expansion and renovation project for the workout areas, physical therapy and rehabilitation facilities will span three fiscal years: 2019, 2020 and 2021.

‘‘The project is moving nicely,’’ Salas said. ‘‘The gym equipment will be installed in the new buildings by September of this year.’’ The project is scheduled to be completed before the end of 2020.

army.mil

Active Duty
PULMONOLOGY

'Game-changing' Virtual Health Care Saves Soldier's Life

By Elaine Sanchez, BAMC Public Affairs

A specialized team from Brooke Army Medical Center virtually supported a heart-lung bypass on the West Coast, saving a Soldier's life and marking a first for this lifesaving program.

BAMC teamed up with Naval Medical Center San Diego last month to administer extracorporeal membrane oxygenation, or ECMO, treatment to a patient with presumed viral myocarditis, an inflammation of the heart muscle which can, in some cases, lead to heart failure.

"This was BAMC's first time virtually supporting ECMO and it was highly successful," said Colleen Mitchell, ECMO primer, Institute of Surgical Research Burn Center. "It is a game changer for critical care."

Physicians first pursued conventional therapy when the young active duty Soldier was admitted to the naval medical center. However, with the Soldier's condition declining, all signs began to point to ECMO as the best course of treatment.

ECMO is a heart-lung bypass system that circulates blood through an external artificial lung, oxygenates it, and delivers it back into the bloodstream. Rather than treat the condition, ECMO performs the job of the patient's heart and lungs, buying the patient precious time to respond to treatments and heal. Established in October 2012, BAMC has the only adult ECMO center with full capability in the Department of Defense and remains one of the few centers in the world with air transport capability.

"The sooner the patient is on ECMO and stabilized, the less time vital organs are without oxygenation or necessary blood pressure support and the quicker the recovery," said Bernadette Elliott, Adult Extracorporeal Life Support (ECLS)/ECMO Transport Program Manager.

With increasing evidence of its lifesaving properties, in recent years adult ECMO

Air Force Col. (Dr.) Phillip Mason, medical director, Brooke Army Medical Center Adult ECMO Program, and other BAMC personnel instruct medical staff on proper extracorporeal membrane oxygenation, or ECMO, cannulation technique at Naval Medical Center San Diego. *Photo courtesy of the U.S. Army*

Army Lt. Col. (Dr.) Robert Walter, chief, Brooke Army Medical Center Pulmonary/Critical Care Medicine, provides telecritical care support during a simulated extracorporeal membrane oxygenation, or ECMO, cannulation at Naval Medical Center San Diego. *Photo courtesy of the U.S. Army*

has become a hot commodity around the world, and other military medical centers have expressed interest in the capability. Naval Medical Center San Diego was one of the first military hospitals to purchase ECMO equipment that would enable short-term care prior to a patient transfer, noted Lt. Col. (Dr.) Robert Walter, chief, Pulmonary/Critical Care Medicine.

Last December, a team of BAMC physicians and nurse specialists flew to the naval center to provide training in ECMO administration, patient transfer, and telemedicine-based mentoring to 25 personnel.

"Fast-forward to now, and that initial training was incredibly beneficial," Walter said. "With the patient in this case clinically declining, the physicians in San Diego were able to recognize at a critical moment that ECMO was indicated and feel confident they could provide appropriate care."

In close coordination with the San Diego-based team, BAMC offered to virtually assist with cannulation, which is the insertion of tubes into a patient, and other ECMO management as the center coordinated a patient transfer to a local hospital.

In the absence of a specialized team and full capability, the aim is for military medical professionals to have the skillset to stabilize patients on ECMO for transfer to a local facility for shorter-term care, such as in this case, or flown to BAMC when a longer course of treatment is indicated, which is typically the case with illnesses such as influenza, Walter explained.

Mitchell was the primer on call at BAMC the day the call came from San Diego. The primer is responsible for ensuring fluid is smoothly flowing throughout the circuit.

"We tried to connect via secure video teleconferencing; however, there were technical issues so we defaulted to audio support," she recalled. "I walked them through cannulation and priming the circuit, while closely monitoring the patient's vital signs. It went very well."

The Soldier was successfully transferred and removed from ECMO after a few days and is expected to fully recover, Mitchell said. "There's no better feeling than to have the skillset needed to contribute to someone's survival," she said.

"If that capability hadn't been there, there may not have been a good outcome," Elliott added.

Teamwork was key to this success, Walter said. "This was a terrific example of collaboration across facilities," he said. "And it was one of the most avant-garde telemedicine application I've seen. There's nothing in medical literature regarding virtual support of adult ECMO cannulation and management. BAMC is truly at the tip of the spear."

Further down the road, Walter said the team hopes to become the hub of virtual ECMO support to other military medical facilities around the world, providing tele-mentoring and virtual biophysical monitoring of patients both stateside and downrange.

The goal is to have consistent, quality ECMO care and capability throughout the Military Health System, said Elliott, noting that BAMC can fly a patient here from a combat zone in 18-36 hours. "Whenever we hear a patient is alive today because of our support … that is what it's ultimately about. It's real-time critical care support."

bamc.health.mil

Active Duty
RADIOLOGY

377th Medical Group Improves Readiness with New Radiology Clinic

By Tech. Sgt. Oneika Banks, Kirtland Air Force Base Public Affairs

The Kirtland Air Force Base 377th Medical Group held a ribbon cutting ceremony Feb. 12, 2020, to celebrate their newest capability, a radiology clinic, that will enable a quicker turnaround time for specific mission readiness requirements and ensuring Airmen are fit for duty.

"If we have to send them over to the VA, the amount of time that it takes to get it back is probably around a week," said U.S. Air Force Staff Sgt. David Lester, 377th MDG diagnostic imaging technologist. "Whereas, if we do it in-house, we get it back in 20 minutes."

Another benefit of the radiology clinic will be the ability to have immediate access to records when Airmen receive a permanent change of station or assignment.

"The VA has a different information system that doesn't communicate with our information system," said Lt. Col. Keye Latimer, 377th MDG Diagnostics and Therapeutics flight commander. "So a provider would have to log into the VA system, which wasn't always available, to see those results. It was a big push, every time someone PCS'd, to make sure that we had those results, get a copy of it or somehow transferred and put into their military medical records."

U.S. Air Force Senior Airman Pia Smith, 377th Medical Group diagnostic imaging technologist, prepares a patient for an x-ray in the new 377th MDG Radiology Clinic during the ribbon cutting ceremony Feb. 12, 2020, at Kirtland Air Force Base, New Mexico. The new clinic will allow quicker turnaround times for results, improving Airman readiness. *U.S. Air Force photo by Tech. Sgt. Oneika Banks*

U. S. Air Force Col. Gregory Colemen, 377th Medical Group commander, Lt. Col. Keye Latimer, 377th MDG Diagnostics and Therapeutics flight commander, and diagnostics imaging technicians, Senior Airman Pia Smith and Staff Sgt. David Lester, cut the ribbon at the new 377th MDG Radiology Clinic during the ribbon cutting ceremony Feb. 12, 2020, at Kirtland Air Force Base, New Mexico. The new clinic will allow quicker turnaround times for results, improving Airman readiness. *U.S. Air Force photo by Tech. Sgt. Oneika Banks*

Latimer says that challenge doesn't exist anymore, so it's a huge patient safety win.

According to Col. Gregory Coleman, 377th MDG commander, having this clinic doesn't take away from the MDG's current relationship with the VA. The unit will continue to work with the VA for other specialty care needs, but this will allow the MDG to have more capacity to meet their needs.

"It's not only a great day for the med group and the expansion of our mission, but also a great day for the wing," says Coleman.

kirtland.af.mil

Active Duty
RADIOLOGY

NMRTC Bremerton Radiology Enhances Connectivity with MHS GENESIS

By Douglas H. Stutz, Naval Hospital Bremerton Public Affairs

Bolstered by new state-of-the-art equipment, with up-to-the-minute capabilities and as-soon-as-possible abilities, linking medical imaging to MHS GENESIS continues to advance in proficiency.

Navy Medicine Readiness and Training Command Bremerton's radiology department unveiled the latest in advanced X-ray technology on May 27, 2020, and by doing so, further enhanced connectivity to the Department of Defense's new, modern electronic health record – known as MHS GENESIS.

The new x-ray system features digital readout with wireless transfer reporting, directly linked to MHS GENESIS, affording providers immediate availability to view reports and imaging conducted for their patient(s).

"In broad terms, the radiology techs take the X-rays on the new system and then send it to our Picture Archive and Communication System (PACS) — called Synapse. The radiologists then review the images on Synapse and dictate a report. The report for the exam is then sent to MHS GENESIS," explained Navy Cmdr. Terrel Galloway, NMRTC Bremerton radiologist.

Galloway attests main advantages of the new X-ray machine are the ease of use expressed by the radiology technologists taking the actual X-rays, along with the ability to take dual energy X-rays which helps with chest X-Ray evaluation.

"It is very beneficial for primary care providers to be able to both look at the images in PACS and also receive our reports on MHS Genesis," said Galloway, noting

Hospital Corpsman 3rd Class Marc Gasbarri poses for a photo with the hospital's new x-ray equipment May 27, 2020. *U.S. Navy photo by Mass Communication Specialist 1st Class Ryan Riley*

that the entire process is also fairly close to real time as the radiology technologists load the digital X-ray images right away.

"Therefore, anyone who has access to the PACS on their computer can look at the images fairly quickly. Depending on the workload and the urgency of the X-ray, they may get interpreted and reported fairly quickly, within an hour if needed immediately, but usually within the day for routine studies," added Galloway.

The addition of the new equipment can be traced back to 2018 when Navy Hospital Corpsman 3rd Class Marc Gasbarri checked into the radiology department. As an X-ray technician, he quickly realized that his new command could use some upgrading to enhance their X-ray capabilities. He then set about the process to replace the old with the new.

Thanks to his proactive determination, adding the new machine further enhances the command's radiology support capabilities.

"At this point, we have one of the most state-of-the-art facilities out of anywhere," Gasbarri said, citing that the new radiologic system can support well over 100 patients daily and if necessary, is capable of operating around the clock.

In 2017, the initial deployment in DOD of MHS GENESIS took place at the 92nd Medical Group, Fairchild Air Force Base, Naval Health Clinic Oak Harbor and Madigan Army Medical Center.

Naval Hospital Bremerton was actually the first site with a significant inpatient population to use MHS GENESIS to provide results of radiology studies completed at one military treatment facility for another.

The initial success came two years ago when 92nd Medical Group sent two radiology studies to NHB use of MHS GENESIS, which were read by radiology providers and finalized in approximately 30 minutes.

That set the standard. Using MHS GENESIS eliminated the need for multiple electronic systems which reduced potential errors, increased reliability, and produced prompt results.

"Our new system is instantaneously linked to MHS GENESIS allowing providers to see imaging minutes after it is completed by the technologist. It's so beneficial, and capable of giving high definition imaging and a more clear interpretation to providers. This system increases our world-wide Navy Medicine mission," noted Gasbarri.

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Active Duty
SURGERY

New Trauma Training Program Prepares Surgical Team for Deployment

By Lori Newman, Brooke Army Medical Center Public Affairs

Brooke Army Medical Center conducted the first of its kind pre-deployment trauma readiness training exercise for the 555th Forward Surgical Team.

The new Strategic Trauma Readiness Center of San Antonio, or STaRC, will use a combination of didactic and hands-on learning to prepare the 555th for deployment. Known as the "Triple Nickel," the 555th Forward Surgical Team is a decorated trauma surgical detachment under the 9th Hospital Center, 1st Medical Brigade, from Fort Hood, Texas.

"This program is unlike any other pre-deployment trauma readiness training in that it takes the best of all training modalities and combines it into one 3-week program," said Army Col. (Dr.) Tyson Becker, BAMC STaRC director.

The program leverages the expertise and capabilities across multiple healthcare disciplines at BAMC, the U.S. Army Institute of Surgical Research, the Medical Center of Excellence, the Joint Trauma System and the Air Force 59th Medical Wing to provide deploying surgical teams with the most realistic and comprehensive wartime skills certification.
"We have all of the resources in one place to do everything that a deploying trauma team needs before they deploy," Becker said, "to include a Joint Trauma Service-led Emergency War Surgery Course with trauma labs, a live-fire field training exercise at Camp Bullis with the support of the Medical Center of Excellence, and BAMC, the DoD's only Level I trauma center where the team will take trauma call."

What makes STaRC truly unique is its comprehensive assessment plan, which standardizes the implementation of various tools to measure individual clinical competency and team proficiency. STaRC is also the first to develop a phased curriculum based on DoD Trauma Registry caseload and performance data. Additionally, the program can also be adapted to meet the needs of a variety of surgical teams.

During the first week of the exercise, the entire 20-person team will attend an

A warrior medic from the San Antonio Military Health System perform simulated medical procedures on mannequins as part of a training exercise May 21, 2020 at Wilford Hall Ambulatory Surgical Center, Joint Base San Antonio-Lackland, Texas. *Photo credit: Senior Airman Ryan Mancuso, U.S. Air Force*

Emergency War Surgery Course hosted by the 59th Medical Wing at Joint Base San Antonio-Lackland.

The surgical team will then break down into two 10-man teams for the remainder of the exercise to replicate split operations during the unit's deployment. Each team will experience realistic training scenarios at Camp Bullis during a live-fire field training exercise. They will also receive clinical instruction from military trauma experts at BAMC and the ISR.

"The focus of this training is on life-saving interventions needed for damage control resuscitation and damage control surgery in the deployed forward surgical environment," Becker said. "To achieve this, every single member of the team will understand their role in trauma care, perform necessary critical procedures, and cross-train for force multiplication."

Becker said the training exercise came about because of the combination of the right people at the right time. BAMC Commanding General Army Brig. Gen. Wendy Harter was previously the command surgeon at U.S. Army Forces Command. FORSCOM is responsible for providing expeditionary, regionally engaged, campaign-capable land forces to combatant commanders.

"Gen. Harter recognized all the resources we have here in San Antonio to train trauma teams," Becker said. That, combined with the drive of Air Force Col. (Dr.) Patrick Osborn, BAMC Deputy Commander for Surgical Services, to make trauma readiness a priority and Becker's deployed trauma experience led to the creation of STaRC.

"We believe BAMC is the ideal location to stand up a Trauma Readiness Center due to the existing alliances and partnerships across this joint market here," Harter said. "We are proud to add this first of its kind pre-deployment training to San Antonio, the 'home of military medicine.'"

"Currently, each service has established separate Trauma Training Centers at civilian hospitals throughout the U.S. to sustain critical wartime medical readiness skills," explained Osborn. "Our program offers the added benefit of a realistic battlefield experience at Camp Bullis."

"To build trauma readiness prior to deploying, surgical units must achieve tactical and operational proficiency through individual and collective training that is tough, realistic, iterative, and battle-focused," he added.

"Through the STaRC program, BAMC's goal is to serve as the premier training platform for operational trauma readiness. We will assess and validate the readiness of DoD's deploying medical professionals and impart BAMC's trauma mindset on these teams to improve combat casualty care."

Becker agrees. "This program will benefit military medicine by sustaining and enhancing trauma skills for every team member of the deploying surgical unit that can increase the odds that U.S. service members can come home alive," he said.

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Active Duty
SURGERY

Tri-Service Surgeons Perform the First Surgeries at New Hospital

By Inkyeong Yun, BDAACH Unit Public Affairs Representative

Six military general surgeons (three Army, two Navy, and one Air Force) and an Air Force Physician Assistant performed surgeries together on the opening day of Brian D. Allgood Army Community Hospital (BDAACH) and Ambulatory Care Center on 15 November, 2019. They experienced the cutting-edge surgical systems in the state-of-the-art facility which has bigger, more spacious operating rooms. This event showcased the solid network and collaboration that has been cultivated amongst the tri-service general surgeons on the Korean Peninsula to enhance the readiness of the U.S. Military in the Pacific region.

The tri-service medical providers gathered in one of the operating rooms (OR) early in the morning for a huddle. General surgery had the honor of performing the first surgery in the new OR. The three Army general surgeons assigned each of the surgeons from the other services to assist with their surgeries throughout the day.

LCDR Dan Sanford and LCDR Paul Lewis, Navy general surgeons assigned to 3rd Medical Battalion, Okinawa, Japan, shared their impressions on the new facility after the huddle. Sanford expressed how impressed he was with the big OR space which helps maneuvering during procedures more safe and efficient. Lewis and Sanford praised the cutting-edge system with built-in cameras that allows for monitoring of the OR.

"This new facility looks wonderful and everything is state-of-the-art, big space to work in the operating room. I am looking forward to participating in the first day at the new facility" said Sanford. "I heard this new facility will have the Da Vinci Robotic Surgical system and I think it is wonderful to have such high-tech capability oversees. This is the only facility in the pacific that will have this capability."

"It's encouraging for us from a surgical standpoint. I was amazed by the high-tech systems, but also working with these skilled Army and Air Force surgeons and a Physician Assistant will make this experience unforgettable. Regardless of the service, in the operating room, we work as one team" said Lewis. "This is a significant event especially with the Defense Health Agency conversion."

This tri-service OR event demonstrated the camaraderie and strong relationship that has been built amongst the surgical staff from three different military services.

Capt. Steven Maya, Physician's Assistant, Osan Air Force base shared that he felt fortunate to be able to see this facility open while he was stationed in Korea. When BDAACH was going through the transition, as their Air Force counterpart, Air Force medical staff supported BDAACH taking care of the patients. This gave them a chance to assist Army surgeons on several surgical cases.

This tri-service OR event demonstrated the camaraderie and strong relationship that has been built amongst the surgical staff from three different military services. *Photo courtesy of the U.S. Army*

"Today we got to work together in this nice and exceedingly modern facility with not only Army surgeons, but also Navy surgeons. It is a very unique experience and I feel very fortunate for that" said Maya. "The collaboration has been great. We have built the strong partnership which helped us be just a phone call away from each other. We would love to come back here more often to work together."

Maya mentioned that he is looking forward to be able to utilize capabilities at BDAACH that are currently not available at the Osan medical facility such as the Intensive Care Unit which

After the huddle, the Army, Navy and Air Force surgeons and Physician Assistant met with the hospital command team. *Photo courtesy of the U.S. Army*

can be utilized for more complicated post-operative care and management.

As the largest medical asset on U.S. Army Garrison Camp Humphreys, BDAACH will become a hub for medical care on the Korean peninsula. The opening of this medical facility allows for the best care possible to be provided for all U.S. military service members and beneficiaries in Korea.

Capt. Christopher Ng, the Air Force general surgeon at Osan Air Base, also shared his anticipation for being able to handle higher complexity cases at BDAACH.

"I feel very honored and grateful to be part of BDAACH's inaugural day. The sheer size and vast capabilities of this hospital will allow for additional avenues to provide the best possible care for our patients, especially those who will need more intervention and monitoring" said Ng. "During the BDAACH migration and while Osan's OR was down for repair, the army surgeons and I would collaborate and share patients, helping to ensure top readiness of the service members and their families on the Korean peninsula. Now we will be that much more able to do so."

Maj. John Fletcher, Army General Surgeon at BDAACH mentioned how great the opportunity was for these tri-service surgeons to be the first surgeons to experience utilizing the operating rooms in this state-of-the-art medical facility.

"This was a great opportunity for us as the General Surgery department as well as the Korean peninsula as a whole" said Fletcher. "It's a real historic milestone for the Brian D. Allgood Army Community Hospital, USFK and the Pacific region."

Maj. Eric de la Cruz, Chief of General Surgery, thanked the Hospital commander for their support for the tri-service OR day.

"It was a greater honor to participate in the first ever surgery held here at BDAACH and to commemorate the entire day by sharing it with our counterparts in the Navy and Air Force. With the DHA now in place, I imagine we will continue to work together more in the future to care for our beneficiaries, to ensure the readiness of our forces, and to be ready if called upon in wartime."

The new BDAACH opened its door to over 65,000 eligible beneficiaries in Korea on 15 November. The facility is medically equipped to support 65,000 eligible beneficiaries and 5,000 inpatient admissions. BDAACH has expanded from its previous 38-bed set-up to 68 total inpatient beds consisting of six intensive care unit (ICU) beds, 40 medical/surgical units, four operating rooms, eight labor and delivery (L&D) beds and 14 behavioral health beds.

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Active Duty
SURGERY

Blanchfield Army Community Hospital Surgery Super Clinic Team Delivers High Level of Care

By Emily LaForme, Fort Campbell Courier

Soldiers and civilians of the 101st Airborne Division (Air Assault) and Fort Campbell continue to serve the community daily during the COVID-19 pandemic.

Because every individual plays an important role whether on the frontlines or working in support, this week the Fort Campbell Courier highlights three Blanchfield Army Community Hospital medical professionals and their contributions to the Surgery Super Clinic in response to COVID-19.

Creating the Surgery Super Clinic

As BACH's medical services were condensed because of the COVID-19 pandemic, surgical services for urgent and emergency procedures were relocated to the Orthopedic and Podiatry Clinic, which temporarily became the Surgery Super Clinic.

"My normal role is surgeon and chief of the Orthopedic and Podiatry Department at Blanchfield Army Community Hospital," said Lt. Col. Roxanne Wallace. "My job during COVID-19 is officer-in-charge for the Surgery Super Clinic. That basically means, we helped consolidate all of the urgent and emergency care into one location that was non-COVID."

Wallace said the biggest challenge was making sure everyone in the Surgery Super Clinic had specialized protective equipment for their roles.

"My main goal was traffic control and minimizing risk of exposure for our healthy patients," Wallace said. "We were able to take care of everyone, anyone who had an urgent or emergency need, or care that just couldn't wait. I think that has been a big success for us. I don't think we've had a huge disruption to care."

Wallace said the overall response of her clinic and BACH has exceeded her expectations so far.

"Looking back, I hope we would see that we did more than what was necessary," Wallace said. "In my book, this would mean we were successful by flattening the curve and controlling the chaos of spread throughout the community."

Collaboration and teamwork have been huge for how her clinic and team have responded to the COVID-19 threat so far.

"We had to communicate to all of the departments, so coordination was paramount," Wallace said. "It's been a job well done. Our staff worked very hard at writing protocols, thinking through problems, their effort has been huge. We are looking forward to continuing the success of containing the spread of disease and resuming elective care. We are going detail through detail of risk mitigation to bring all of our patients back in to take care of."

Protecting the team

Not only was the staff at Surgery Super Clinic working hard to transition services and adapt to changes, they also needed to make sure everyone was protected while providing care.

"I'm responsible for the overall management of the team," said Micki D. Cavender, clinical nurse officer-in-charge for the Orthopedic and Podiatry Clinic. "I wanted to make sure we were prepared in case we did have a COVID-19 positive patient, or a suspected COVID-19 patient. We needed to set up a room in case we did need to screen [patients], and we also needed to be able to work closely with the COVID-19 clinic to make sure our processes follow CDC guidance."

With additional services and procedures coming through the clinic, Cavender ensured her team was protected as they continued their daily operations.

"With any new process, you modify the steps you need to take and make sure everyone has the same communication throughout the team, so everyone understands what they need to do," she said.

"We've been encouraging everyone to wear masks when meeting with patients or even standing together and talking for periods of time and maintaining social distancing as much as possible."

Cavender said the biggest challenge her team faced was wearing personal protective equipment and maintaining social distancing while caring for patients.

"It's a new experience wearing PPE constantly," she said. "For us, we are hands-on with patients every day."

Cavender said her team has been extremely successful in continuing their mission while also adapting to COVID-19 safety protocols.

army.mil

Active Duty
UROLOGY

New Business Model Expanding Access to CRDAMC's Urology Services

By Ms. Gloria Montgomery (Carl R. Darnall AMC)

Recent administration changes, additional doctors, more space and better equipment have contributed to nearly doubling access to care in Carl R. Darnall Medical Center's urology clinic.

"In any one day, with our three active physicians, our numbers will be between 60-80 patients per day," said urologist Maj. James Farrell, adding that those changes also were noticed by the Department of Defense who recognized them for their production successes.

Previously, the clinic was operating at half that capacity, partly because of patient accounting, limited capabilities, and low-volume patient load. Still, the clinic was within patient-access standards.

"We knew we could do better than what we were doing, so why not just be better?" said Dr. Farrell, who along with fellow urologists, Maj. Tara Ortiz and Dr. Hsiang Chi (Cathy) McLaughlin, began dissecting clinic operations. "The way to do that was to increase our access and improve our ability to take credit for the work we were already doing."

Using civilian and military benchmarks that correlate patient care with revenue, the trio began rebuilding urology's business model, one variable at a time, including factoring in patient cancellations. This bumped up the previous average of 12 patients per day per doctor.

According to Farrell, limited exam and procedural space, as well as outdated and unreliable equipment dictated patient load in the old hospital. For example, the clinic previously had just four or five working bladder camera scopes at any one time. Today, the clinic has nine. This required

Carl R. Darnall Army Medical Center's urology team from left, Dr. Hsiang Chi (Cathy) McLaughlin, Maj. James Farrell and Maj. Tara Ortiz. Using civilian and military benchmarks that correlate patient care with revenue

the CRDAMC urology team to refer their patients to the community network for care. That translated into lost revenue.

"Production is a numbers game, said Dr. McLaughlin, a CRDAMC veteran who has been at the Fort Hood hospital for 12 years as both a Soldier and a civilian. "If your doctors aren't doing anything, you aren't going to make any money."

The clinic's low patient numbers wasn't just about lack of space and equipment: It also was about the lack of patients with urology issues. That all changed in 2016 when retirees were brought back into the network. "The increased patient load immediately impacted clinic operations," said Dr. Ortiz, CRDAMC's urology chief.

The patient population explosion also exposed the team to urology issues more in line with civilian hospitals than the military's younger and healthier population group. "Since we've recaptured some of the retiree population, we're seeing a broader range of urology issues such as prostrate and kidney cancers," said Ortiz.

New technology like robotics also has helped open the door to more patients. "Our robotics capability has increased the number of complex surgeries we can do here," said Farrell, adding that robotics is the surgery tool of choice in drainage reconstruction surgeries and prostate and kidney cancers.

But they said, none of this would have been possible without command support. "We've a good collection of people who recognize that part of the mission here is to do a really good job of helping people get their health care," said Farrell. "This has really helped us increase the amount of work we're doing in large part by maximizing the time we can see people without hurting our team of nurses and medical assistants."

According to Farrell, the additional space that enabled the clinic to do more procedures elevates safety. "Personally, I feel the more work you do the safer and more efficient you are," he said. "I can look at a patient and recommend a surgery option and be confident in telling that patient, 'yep, we can take care of you, and you're going to be fine.'"

Ultimately, the patient experience drives the team's energy and not revenue. "The care we provide is equal to, if not better, than our civilian counterparts," said McLaughlin, adding that she feels military providers have a better understanding of their patients because of their shared experiences.

Overall, said McLaughlin, the increase in business units are a testament to the team's dedication to their patients and their profession. "It feels like the hard work we have done together as a group has come to fruition in a sense that we are more efficient," said McLaughlin. "We're moving in the right direction."

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Active Duty
WOMEN'S HEALTH

The Head, Hand, and Heart of Women's Health

By the Military Health System Communications Office

While healthy living is essential to all military personnel and civilians, there are some health concerns that affect women differently than men, sometimes with more life-threatening consequences. October — Women's Health Month — provides a platform to educate women on issues that affect their day-to-day lives. The Military Health System contributes by addressing health issues as they relate to women.

From the catchphrase of nonprofit organizations to ancient lifestyle teachings, the concept of nurturing the "head, hand, and heart" has been referenced in popular culture, specifically when it comes to health. Nourishing these three aspects of health, and noting how symptoms in women may differ from those in men, can keep women ready and vigilant to counter health issues as they arise. Here are a few areas of health that women should take into consideration.

The Head: Managing migraines and depression

"A higher percentage of women than men suffer from migraines," said Briana Todd, clinical psychologist at the Psychological Health Center of Excellence. "Research suggests women experience them approximately two to three times more frequently."

According to Todd, many migraines in women are related to a drop in estrogen levels, particularly around a woman's menstrual cycle. Estrogen drop is just one of multiple red flags that may precede a migraine. Todd says that tracking these warning signals will help women manage future migraines and mitigate symptoms.

Another illness that affects women differently is depression, marked by a period of low mood lasting at least two weeks. Depression affects women most drastically during three stages of life: puberty, post-pregnancy, and just before menopause.

U.S. Air Force Senior Airman Raviro Mutuhme, an aerospace medical service technician assigned to the 633rd Medical Group, monitors a fetal heart rate during a Women's Health Clinic appointment at Langley Air Force Base, Va., *U.S. Air Force photo by Senior Airman Aubrey White*

Medical professionals like Navy Cmdr. Paulette Cazares, associate director for mental health at the Naval Medical Center San Diego, urge women to view depression the same way they view other serious illnesses that require treatment. "[This] allows service members to realize the necessity of early treatment, and the ability to stay focused on career and personal goals," Cazares said.

The Hand: Protecting the body against breast cancer

Recent statistics posted by the National Cancer Institute list breast cancer as the most common cancer in the United States. While the disease exists in both men and women, women are estimated to be diagnosed nearly 100 times more often than men. Changes in the breast region like persistent pain, lumps, dimpling, irritation, and expelling of abnormal discharge are all symptoms of breast cancer. Women are advised to visit their providers if these symptoms persist.

Factors like family history cannot be changed in preventing breast cancer, but keeping fit via diet and exercise can. Women are advised to avoid unhealthy behaviors like excessive alcohol or cigarette use. Breast cancer screening is also a healthy tool to keep track of breast health and detect symptoms early. Women should talk to their providers about these screenings and materials for self-assessments of breast health.

The Heart: Preventing heart disease

Heart disease is a common health complication for both men and women, with the Centers for Disease Control and Prevention attributing it to one in every four male deaths as opposed to one in five female deaths. However, heart disease is still the leading cause of death in women in the United States.

Not every woman is symptomatic for heart disease; some fail to show warning signs until the onset of more serious episodes, such as heart attack, heart palpitations, or heart failure. Common symptoms to look for are pain in the chest, neck, jaw, throat, upper abdomen, or back.

Women can reduce their chances of getting heart disease by paying attention to blood pressure and maintaining a healthy lifestyle of a balanced diet and exercise.

health.mil

Active Duty
WOUND CARE

Air Force Tests En Route Wound Care Device

By Shireen Bedi, Air Force Surgeon General Public Affairs

Air Force Medical Evaluation and Support Activity engineers and medics successfully tested a new multi-channel wound vacuum system, a device that would improve aeromedical evacuation crews' capability to deliver life-saving en route wound care.

AFMESA routinely performs operational testing of medical devices. When delivering critical care in the air, devices have to work and there is no room for error.

Wound suction is vital to treating complex trauma wounds, often from bullets or blast fragments. Keeping suction on these wounds during flight promotes healing, helps prevent infection, and reduces swelling.

Currently, wounds are treated with a single-channel wound vacuum system that only treats one wound at a time. According to Lt. Col. Brandi Ritter, chief of AFMESA, this is a significant limitation since critical patients on AE flights often have multiple wounds. This forces crews to use several single-channel wound vacuum systems on one patient. In the cramped space of an aircraft, some crews had to stack devices on injured patients, making it difficult for medics to assess and treat them.

"Relying on several single-channel wound vacuum systems to treat one patient is not an effective way to deliver care in the back of an aircraft," said Lt. Col. Deb Lehker, a reserve commander at the 752nd Medical Squadron who served as a critical care air transport team nurse. "Sometimes you could barely see the patient under all the equipment, but using several devices is critical to a patient's survival."

To address the limitations with the single-channel wound vacuum device, and ensure aeromedical evacuation crews are still equipped with effective wound-healing capabilities, a team from Air Combat Command and Air Mobility Command worked to develop the multi-channel negative pressure wound treatment system.

"This device would replace the capabilities of four single-channel devices into one multi-channel device," said Lt. Col. Lewis Wilber, deputy chief of AMESA. "The multi-channel system makes it easier to transport and treat multiple wounds simultaneously without restricting access to the patient.

The multi-channel wound vacuum system is tested on a simulated patient in a C-130 static aircraft display at the 59th Medical Wing, San Antonio, Texas. The multi-channel wound vacuum system, which is used to promote wound healing on critical patients, is able to replace the capabilities of four single-channel systems. This smaller, more transportable device makes it easier for aeromedical evacuation crews to deliver en route wound care to patients with multiple wounds. The Air Force Medical Evaluation Support Activity (AFMESA) team was involved in the testing of the multi-channel wound vacuum system, ensuring the device could perform in the operational environment. *Photo courtesy of U.S. Air Force*

After a prototype was created, AFMESA's team tested and evaluated the device, going beyond the manufacturer's specifications to ensure it meets the rigors of use by AE medics operating aboard an aircraft.

"We wanted to ensure the device could effectively support the mission," said Ritter. "For example, we looked to see if the device functioned under extreme temperatures and certain humidity levels. We also wanted to know if the device would still be operational if one of the channels stopped working."

AFMESA testers recommended deployment of the new system on AE flights because it would be a significant improvement over the single-channel system. "The multi-channel wound vacuum system was able to withstand AFMESA's rigorous testing process," said Ritter. "More importantly, the device would improve medic's abilities to deliver life-saving en route care.

airforcemedicine.af.mil

Active Duty
WOUND CARE

Healing Chronic Wounds: Madigan Inpatient Team Offers Specialized Care

By Ms. Suzanne Ovel, Regional Health Command Pacific

When she underwent ankle surgery in December, Jess Smith had no idea the path she would navigate. She unexpectedly experienced an allergic reaction to the internal sutures in her ankle and contracted an unusual bacteria as well — both of which set off the perfect biological storm for a chronic wound to form.

"Since I'm a nonstop kind of person, there came to a point where I actually had to be admitted … I had an open wound down to the bone basically," said Smith, who is both a Madigan patient and a nurse in the Limb Preservation Clinic.

In stepped the Wound Care Service's inpatient team, which stood up just six months ago to provide dedicated expertise to hospitalized patients with chronic wounds. The two-nurse team, which boasts 25 years of wound care experience between them, joined forces with the service's long-standing outpatient clinic to provide a continuum of care for patients like Smith with chronic wounds.

"In addition to providing hands-on inpatient wound care, the goal was to work very closely with the staff nurses to educate them on the importance, for example, of the skin assessment. Joanie (Santucci) and Eloa (Reid) spend a lot of time working with the inpatient nurses to make sure there's an appropriate focus on assessing patients, preventing ulcers, identifying early skin breakdown with education, writing policies and hands-on care," said Dr. Charles Andersen, chief of Madigan's Wound Care Service.

Although most wounds don't require the extra care of this specialty, some just don't heal as expected and become chronic. In these cases, patients might be referred to the Wound Care Service.

Regardless of the type of the wound — such as a pressure sore, burn or surgical site — treating them involves three factors: treating the wound itself, addressing the cause of the wound, and remedying any negative healing factors, such as poor blood flow.

While the most common treatments for chronic wounds are advanced synthetic dressings and negative pressure wound therapies, an almost innumerable amount of treatment options exist with the common goal of creating an environment that contains the right level of moisture for optimal healing.

In Smith's case, regrowing tissues and receiving a skin graft required the inpatient nurse team to treat her with a Wound Vacuum-Assisted Closure device to increase blood flow and reduce edema, and an instillation negative wound therapy that infused antibiotics directly into her wound bed for set periods of time.

"Their knowledge and ability to adapt to whatever the issue is, is amazing," said Smith of the team.

"We're often asked to see people to figure out what the etiology is (what caused it), how to best treat it and manage it and include possibly surgical teams, and then work directly with doctors and nurses and write wound care orders," said Santucci, who along with nurse Nancy Hodges also formally provides wound care education as a satellite site for the University of Washington's Wound Care Fundamentals Course.

The team works directly with multidisciplinary medical teams on a daily basis — from nurses to doctors and from case managers to physical therapists.

"It's a cultural change; it's new for everybody," said Reid, who emphasized the team's role in offering consults. "We always leave the door open for the nurses."

In the inpatient setting, wound care is a focus for patients from admission to discharge, starting with nurses scanning the skin conditions of all patients. The inpatient Wound Care Service team focuses particular attention on identifying patients who are more susceptible to pressure ulcers, which can occur when patients are less mobile. In fact, patients who are in at-risk situations, to include surgical patients, are assessed more frequently, said Santucci. If patients do develop or come in with ulcers or other wounds, she and Reid work with care teams to treat the wounds early on.

To ensure wounds are still treated even after hospitalization, patients who need additional follow-up care are then set up with appointments with the outpatient clinic as a part of their discharge process.

"The idea is to make that seamless between the outpatient and the inpatient," said Andersen about the wound care pathway; patients can also now be more easily admitted if needed thanks to referrals from the outpatient wound clinic.

Smith took part in that pathway herself as she transitioned to the outpatient clinic after discharge. After four weeks as an inpatient, she offered nothing but praise for the service's inpatient nurse team. "They literally don't stop until the day is done … There are days where they're still here well past their shift," she said. "That's the kind people they are, and how dedicated they are to their jobs here and to the patients."

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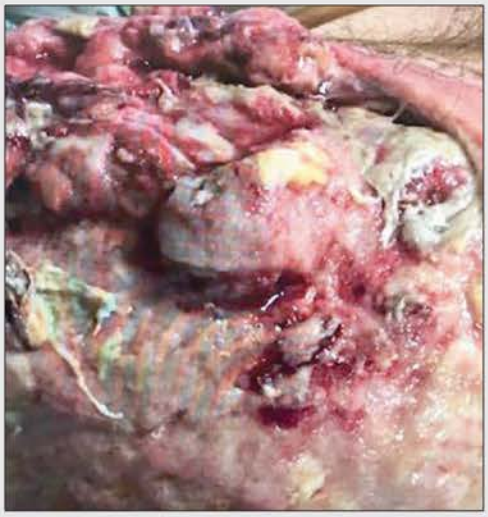
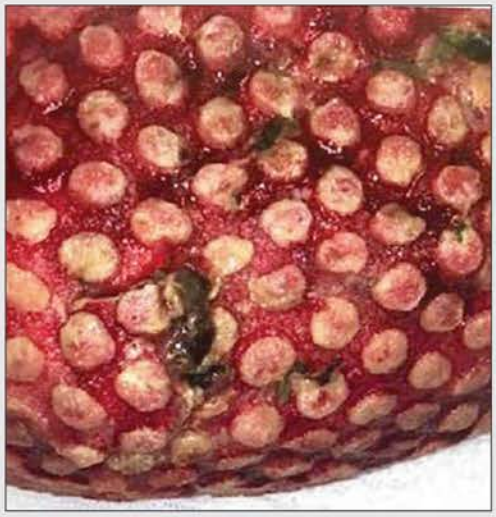


Wound at presentation.



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1. Lessing M, James R, Ingram S. Comparison of the effects of different negative pressure wound therapy modes- continuous, noncontinuous, and with instillation- on porcine excisional wounds. *Eplasty*. 2013;Oct 1; 12:e51. eCollection 2013.
2. V.A.C. VERAFLO™ Therapy with V.A.C. VERAFLO CLEANSE CHOICE™ Dressing use in a traumatic wound. Submitted by Luis Fernandez, MD, FACS, FASAS, FCCP, FCCM, FICS, University of Texas Health Science Center, Tyler, TX.

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Veterans
SPECIAL FEATURES

Highlights of VA's Community Care Program under the MISSION ACT

By Elizabeth Bass and Heidi Golding, Congressional Budget Office, Washington, DC

In 2019 just over 9 million veterans were enrolled in the Veterans Health Administration (VHA), and about 6 million of them sought at least a portion of their medical care from VHA that year. VHA operates one of the largest integrated health care delivery systems in the U.S., including a network of about 170 medical centers and more than 1,000 other facilities such as outpatient clinics and nursing homes.

VHA has long supplemented direct care provided in its own hospitals and other facilities with community care. Traditionally, only certain veterans could qualify for that care, and decisions about using community care were generally made at the local level by each medical center. However, in response to access problems that some veterans faced, in 2014 Congress created a temporary program called the Veterans Choice Program. Under that program, eligibility for community care applied more broadly to all enrolled veterans, rather than special groups like those with service-connected disabilities or those living in highly rural areas. Several years later, the VA Maintaining Internal Systems and Strengthening Integrated Outside Networks Act of 2018 (P.L.115-182), or VA MISSION Act, established the Veterans Community Care Program (VCCP). Many of the existing programs for outside care were consolidated under VCCP, and eligibility criteria for community care was further expanded.

The VA MISSION Act requires VHA to contract with community providers — mostly in the private sector — who agree to be part of VHA's network and accept reimbursement by VHA, which, with some exceptions, is the rate paid for services by Medicare. (For instance, reimbursement rates in some rural areas may be higher.) Community providers have 180 days to submit a claim. VHA must pay those providers within 45 calendar days of receiving a paper claim or within 30 calendar days of receiving an electronic claim. VHA must also monitor the quality of health care provided to veterans.

In June 2019, as the Veterans Choice Program ended, VCCP began allowing veterans, under certain conditions, the option to use community care providers. Veterans now have greater flexibility in accessing hospital care, medical services, and extended care services provided by the private sector but paid by VHA. To use VCCP, the veteran must be enrolled in VHA or otherwise eligible for VHA care. In addition, at least one of six conditions must be met in which the veteran:

Photo Credit: Los Angeles County Veterans Affairs

- Had been eligible under the 40-mile distance criteria under the Veterans Choice Program and meets certain additional criteria (although that grandfathering provision may not apply indefinitely);
- Is unable to schedule an appointment at a VA medical facility within 20 days for primary care, mental health, and non-institutional extended care services or within 28 days for specialty care; or must drive an average of 30 minutes for VA primary care, mental health, and non-institutional extended care services, or an average of 60 minutes for VA specialty care;
- Needs health care that is unavailable at a VA medical facility (such as maternity care);
- Lives in a state or territory that lacks a full-service VA medical facility (which currently includes Alaska, Hawaii, and New Hampshire as well as American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands);
- Is in agreement with his or her VA clinician that it is in the veteran's best medical interest to receive care in the community; or
- Needs health care that VA has determined it cannot provide within its own quality standards.

In order to see an outside provider, the veteran must contact VHA for prior approval. VHA then sends the provider a

referral and an authorization, and also typically schedules the appointment. The veteran may chose the in-network community care provider, or VHA will do that for the veteran. For veterans who have a copayment for care of non-service-connected conditions, VHA will bill the veteran directly. Any copayments would be the same as those applied if the veteran had used a VA medical facility. As the program evolves, some of those program rules or procedures may change.

There are other ways outside of VCCP that veterans can receive community care. For example, any enrolled veteran who has received VHA care in the past two years may — without prior authorization — use urgent care facilities (walk-in clinics) that are in VHA's provider network for minor injuries and illnesses that are not emergencies. Veterans may, however, be responsible for a VHA copayment ($30); certain veterans are not liable for a copayment until the fourth visit. Another newly authorized service for community care is organ and bone marrow transplants.

Because the accessibility criteria for community care is broader than ever before, VHA anticipates that — while enrolled veterans will continue to receive the majority of their care through VHA-owned facilities — the use of outside providers paid by VHA will grow in future years. The Veterans Choice Program illustrated the increase in use when access and funding is expanded. According to the U.S. Government Accountability Office, between 2014 and 2018, the number of veterans authorized to use community care increased by more than 40 percent, reaching nearly 1.8 million enrollees in 2018. While some services provided in the community saw relatively little growth, the use of other services increased rapidly. Certain outpatient services grew in excess of 200 percent; one such example was the increase in outpatient visits (for conditions other than mental health), rising from about 0.6 million to 2.2 million over the period. VHA forecasts that some groups of the newly eligible veterans may have similar increases, although others may have less. To pay for all of its community care programs, VHA has requested $20 billion for 2021, about 20 percent of spending, compared to $8.7 billion in 2014, about 14 percent of spending in that year (adjusted for inflation).

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Courtesy of U.S. Department of Veterans Affairs

Veterans
SPECIAL FEATURES

VA Grabs Two Sammies Nominations for Innovations Benefitting Veterans

The Samuel J. Heyman Service to America Medals recently announced that two VA programs and its leaders have been named finalists in the 2020 Sammies Awards. The recognition is for the VA health care programs — 3D Printing Network and Connected Care — which have greatly helped to transform the lives of countless Veterans.

VA's nominations in the categories of science and environment and management excellence are a testament to the department's leadership in delivering creative solutions for Veterans.

The 2020 finalist in science and environment is Chair of the 3D Printing Advisory Committee Dr. Beth Ripley. The 2020 finalists in management excellence are: Chief Officer for Connected Care Dr. Neil Evans; Executive Director for Telehealth Services Dr. Kevin Galpin; and Executive Director for Connected Health Kathleen Frisbee, PhD.

While innovation and federal government are rarely mentioned in the same breath, the Sammies offer a platform to elevate government innovation and noteworthy accomplishments. The finalists' combined skills and leadership in technology, medicine and policy are guiding VA's merging of virtual tools with health care.

"VA has long been a leader in incorporating innovative technologies to meet the health care needs of the nation's Veterans," said VA Secretary Robert Wilkie. "It's inspiring to see VA employees apply their medical expertise to innovations that elevate the quality of care delivered to Veterans."

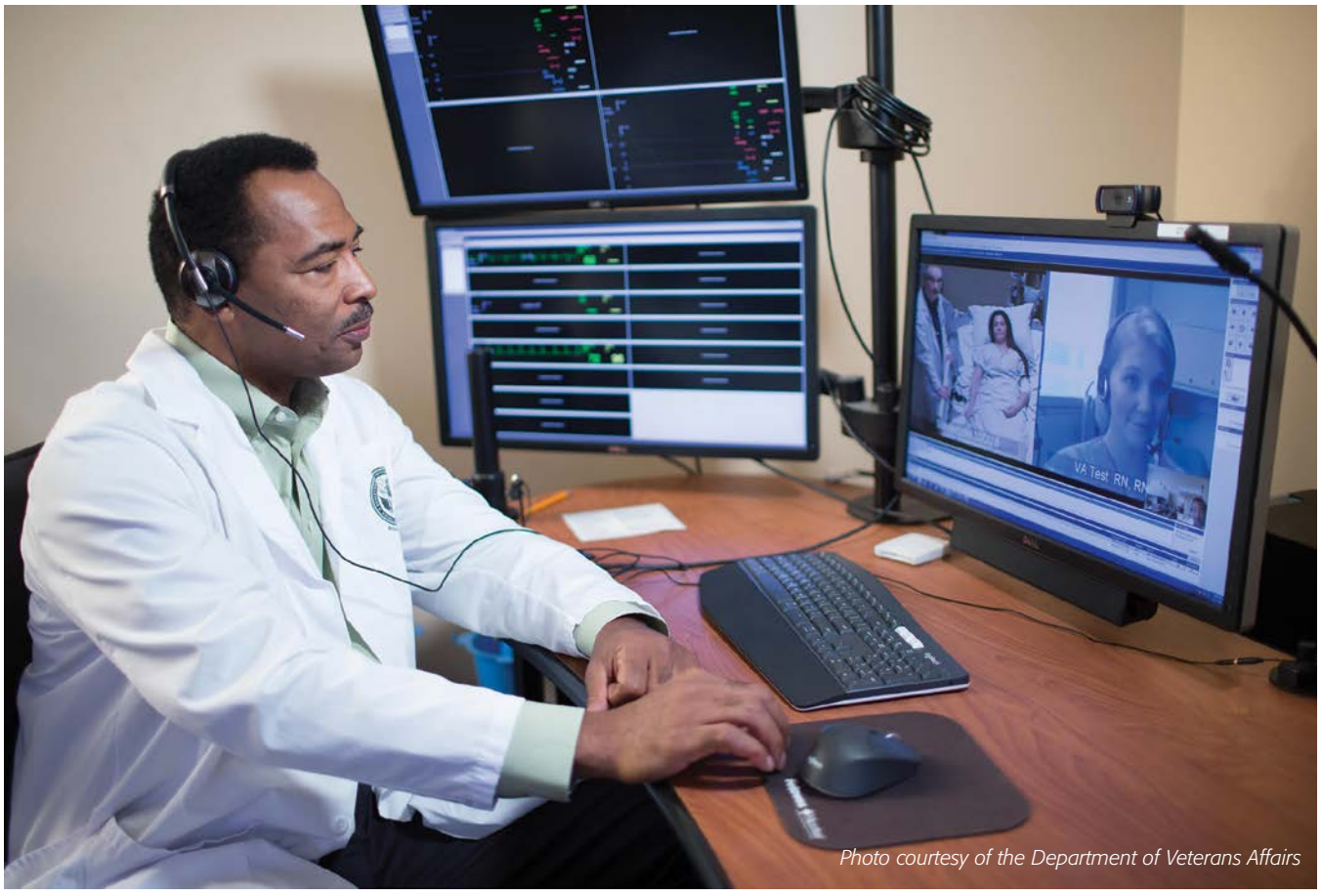


Photo courtesy of the Department of Veterans Affairs

3D Printing

VA established a national 3D Printing Network for developing solutions and advancements that aid in surgery, prosthetics, dentistry and assistive technology devices tailored for individual patients' needs.

VA started its network with 3D printers in Richmond, Pittsburgh and Minneapolis in 2017, and has since grown to 35 medical centers across the country.

"This has been a significant investment in the future of VA" said Ripley. "Our mission is clear: the goal is to serve Veterans. All I have to worry about is how to treat patients."

In March, VA quickly mobilized its 3D printing resources to help with the fight against COVID-19. This resulted in partnerships with the U.S. Food and Drug Administration, the National Institutes of Health and private business. These partnerships rapidly scale across the network, allowing users to create prototypes for personal protective equipment and medical supplies — like face shields, masks and ventilators.

Before the pandemic, Ripley set her sights on creating living tissue and exploring projects to print vascularized bone for treating patients with bone tumors or chronic infections. VA Puget Sound Health Care System, where Ripley works, is one of four VA hospitals with a bioprinter.

Connected Care

As America's largest integrated healthcare system, VA has long invested in Connected Care services. These expansive resources include telehealth options, mobile apps and other digital health solutions. In fiscal year 2019, more than 900,000 Veterans used VA telehealth services for almost 3 million appointments.

"Connected Care technologies allow Veterans to link with their VA health care teams from their preferred location," said Evans. "Ultimately, this makes care more accessible and convenient."

VA Video Connect sessions increased by 235% with close to 100,000 Veterans joining virtual appointments from home and nearly 300,000 total appointments. Where normal operations used to see 2,000 daily appointments, these numbers have swelled to 18,000 in April due to COVID-19.

"As the crisis unfolds, VA is relying on connected care technologies to provide ongoing medical care," said Frisbee. "This helps to reduce the number of Veterans who are ill from physically entering medical facilities."

VA's patient portal, My HealtheVet, has surpassed 5 million registered users and provides Veterans the ability to send providers secure electronic messages, access medical records, check lab results and refill prescriptions. In March 2020, it received more than 2 million prescription refill requests – the most ever submitted to the portal in a single month.

"We want this to be the most convenient health care system with consistent access for every Veteran no matter where they are," said Galpin. "Remote options available to Veterans have been critical, especially for those living in rural areas and those with mobility or transportation challenges."

The Sammies

The Sammies award, known as the "Oscars" of government service, was named for the Partnership for Public Service's late founder who believed "the future of our nation quite simply depends on the quality of our government."

va.gov

Veterans
ADDICTION

Treatment Options for Substance Use Concerns

By Matthew Miller, PhD, MPH, Director of Suicide Prevention Program,
Office of Mental Health and Suicide Prevention

Many studies have shown a relationship, at times, between alcohol use and suicidal thoughts and/or suicide attempts.

Sometimes people wonder, "When is alcohol a problem?" Common signs that may suggest further consideration include drinking more or for longer than you intended. Family members or friends voice concerns about your drinking or drinking that interferes with activities. Being unable to reduce your drinking or stop drinking entirely.

We are currently experiencing a time marked for many people by higher stress and more difficult life circumstances. Also, relationship separation or problems, financial challenges and general uncertainty. Here are five things you can consider to improve your health:

Take a self-assessment for at-risk alcohol use

Information and resources are available about substance use, including alcohol. If you are worried about your use of alcohol, take an anonymous and confidential self-assessment. Share the results with your health care provider so you can discuss care and treatment options.

Access treatment services

VA offers treatment options for substance use concerns that range from alcohol use impacting your health to life-threatening addictions.

Start a conversation with your primary care provider about your overall health. Also, discuss how changes in your alcohol use may help your health in different areas, such as sleep and diabetes management.

Locate a substance use disorder (SUD) program or a local recovery coordinator (LRC) at your VA medical center. Each VA medical center offers SUD programs or treatments and has LRCs who develop recovery-focused programs for Veterans.

To search for SUD treatment outside of VA, the Substance Abuse and Mental Health Services Administration offers 24/7 free, confidential help with treatment referral and information services for individuals and families facing mental health or substance use disorders. Call 800-662-4357.

Access VA mental health services

Mental health conditions may contribute to use of alcohol and/or other substances. Conditions include depression, posttraumatic stress disorder (PTSD) and military sexual trauma. VA offers mental health services for Veterans. Below are a few resources for accessing mental health services:

Find the nearest VA medical center to make an appointment and see a health care provider. Vet Centers provide combat Veterans and their families with a broad range of counseling, outreach and referral services.

These include individual and group counseling for alcohol and drug misuse, PTSD, suicide risk and more. Call 877-WAR-VETS (877-927-8387) to access these free and confidential services.

Think about firearm safety

70% of Veteran deaths by suicide involve a firearm. Use of alcohol or other substances may be a way of coping with distress and in times of crisis. People may act impulsively. Consider additional safe storage practices, such as keeping firearms locked, unloaded and stored separately from ammunition to help create a safer environment. Safe storage also protects all members of the household, including children, from accident and injury.

Create a safety plan

Work with your health care provider to create a safety plan to reduce or stop your drinking and continue your journey to recovery. Having a plan in place and sharing it with a loved one can also help guide you through difficult moments and help prevent a crisis.

You are not alone

You are not alone in your path to wellness and recovery. Visit MakeTheConnection.net to view other Veterans' candid descriptions of life with problems due to alcohol use and what they did to get started on their road to recovery. Make time to seek out the support you need. Call a helpline, join a support group or get individual counseling.

If you or someone you know is having thoughts of suicide, contact the Veterans Crisis Line to receive free, confidential support and crisis intervention available 24 hours a day, 7 days a week, 365 days a year. Call 1-800-273-8255 and press 1, text to 838255 or chat online at VeteransCrisisLine.net/Chat

va.gov

Veterans
AUDIOLOGY

Better Hearing for Veterans, Remotely

VHA IE delivers remote audiology care to Veterans

By Matthew Razak, Atlas Research

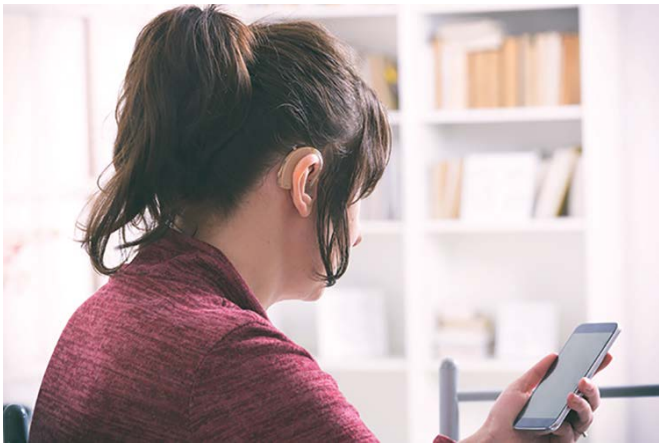
VHA's Innovation Ecosystem (VHA IE) is bringing better hearing options to Veterans virtually. The VA Audiology and Speech Pathology Program Office, led by Dr. Rachel McArdle, has worked with VHA IE to extend care beyond the walls of VA audiology clinics. Those options include remote hearing aid orientations and adjustment sessions using a variety of hearing aid tools.

ERTHI is Enterprise Remote Tuning of Hearing Instruments. The program uses a specialized applications that allows a Veteran to connect their hearing aids to their phone via Bluetooth. This enables virtual interaction with an audiologist to ensure the appropriate settings on their hearing aids. The audiologist can see how the hearing aid is functioning and help the Veteran adjust it despite not being there in person.

"The Veteran called the whole session magic," Dr. Lori Howe, an audiologist at the Captain James A. Lovell Federal Health Care Center (FHCC), said of an 84-year-old Veteran participant. This is just one of many testimonials about the new remote hearing care efforts underway at VA.

Common issue for Veterans

Hearing loss is a common issue for the Veteran community, with more than 1.2 million Veterans receiving hearing loss compensation. Loss of hearing can have major impacts on an individual's emotional, cognitive, and even physical well-being. This also means that hearing aids need to be adjusted and corrected regularly.



Because of this need and recent events, VA has now pushed 10 years of research, studies, and work over the finish line, rapidly spreading ERTHI across the health care system in only five weeks.

Audiology apps

Audiology teams at Cheyenne VA Medical Center (VAMC), Capt. James A. Lovell FHCC, Miami VA Healthcare System, VA Northeast Ohio Healthcare System, and Harry S. Truman Memorial Veterans' Hospital, under the guidance of Dr. Chad Gladden, began testing and implementing the use of remote audiology care apps that multiple hearing aid vendors created. These apps had to function within VA's IT infrastructure, be secure to ensure Veterans' health care privacy, and be easy to use so that any Veteran could engage with them.

After extensive testing, Veterans across the enterprise began use of mobile audiology care apps in May, receiving remote hearing aid orientation and adjustments.

"Being able to hear has an incredible impact on how individuals interact with the world around them," said Dr. McArdle. "This program enables us to help our patients get the most of their hearing aids in the safety of their own home."

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Veterans
AUDIOLOGY

VA is America's Largest Employer of Audiologists and Speech-language Pathologists

Communication is the most important skill that lets us interact and share information with each other. Good hearing and speech play important roles in experiencing life for Veterans and service members. It connects them with the people and world around them.

VA employs over 1,370 audiologists, 410 audiology health technicians and 450 speech-language pathologists This makes VA the largest employer of audiologists and speech-language pathologists in the United States.

Audiologists provide services at over 490 VA sites of care. Speech-language pathologists provide services at over 190 VA sites, as well as for home care. Audiology and speech pathology services are provided using telehealth technology.

With the support of the Office of Academic Affiliations, VA has provided training for 176 graduate trainees. In the past year, more than one million Veterans have benefited from interventions provided by audiologists and speech-language pathologists.

Military service is hard on the ears. Within the Veteran population, tinnitus (ringing in the ears) and sensorineural hearing loss account for the two most prevalent service-connected disabilities.

Services provided

VA's audiologists provide:

- Screening and prevention services
- Evaluation and treatment of hearing loss and balance disorders
- Tinnitus education and management
- Auditory rehabilitation services to optimize residual hearing.

Audiologists are specialists in providing hearing aids and other assistive listening devices. Also, post-surgical rehabilitation for cochlear and other bioelectric auditory implants.

Speech-Language Pathologists provide:

- Evaluation, treatment, and prevention services for:
  - — Speech
  - — Language
  - — Cognitive-communication
  - — Voice disorders.

A speech pathologist counsels a Veteran to communicate after surgery, as graduate students look on. *Photo courtesy of the Department of Veterans Affairs*

Communication includes:

- Understanding auditory information
- Verbal expression
- Reading comprehension
- Writing
- Non-verbal communication such as:
  - — Gestures
  - — Facial expressions
  - — Sign-language.

In some cases, Veterans benefit from assistive technology, such as computerized speaking devices, cognitive aids or a voice prosthesis.

Over the past 25 years, VA speech-language pathologists have been the leaders in rehabilitation for patients with dysphagia or difficulty swallowing.

va.gov

VA Encourages Women Veterans to Take Control of their Heart Health

Number of younger women having heart attacks increasing

By the VA's Women's Health Services Office

Did you know heart disease is the number one killer of women in the United States?

Coronary artery disease and heart attacks took the lives of almost 300,000 women in 2017. The disease affects women of all ages and heart attacks are on the rise for younger women.

Fortunately, nearly 80 percent of cardiac events may be prevented by lifestyle changes and education. During Heart Month this February, VA is partnering with the American Heart Association (AHA) to equip women Veterans with the information, tools and resources they need to reduce their risk of the disease.

The symptoms of a heart attack can differ in women versus men. Like men, the most common heart attack symptom for women is chest pain or discomfort. However, women are more likely than men to experience other heart attack signs, such as:

- Shortness of breath
- Pain or discomfort in one or both arms
- Nausea or vomiting
- Back or jaw pain
- Dizziness or fainting
- Breaking out in a cold sweat

Graphic courtesy of the Department of Veterans Affairs

Photo courtesy of the Department of Veterans Affairs

Regular checkups are crucial

Because disease symptoms vary — and because some women don't experience any symptoms at all — it's crucial to have regular checkups to ensure warning signs are caught.

Your provider can identify risk factors before the disease strikes and make recommendations to help you lower your future risk.

Beyond keeping up with provider appointments, you can make healthy lifestyle changes, such as regular exercise, healthy eating, and managing your blood pressure, recommend:

- Eating a variety of healthy foods
- Doing moderate-intensity aerobic activity

  — Brisk walking or biking (slower than 10 mph) at least 150 minutes a week
- Knowing your numbers (blood pressure, cholesterol, blood sugar, and BMI)
- Take advantage of VA's medical nutrition therapy

va.gov

Veterans
CARDIOLOGY

Watches Provide Health Care Connections for Veterans

Managing their AFib is just one example

Smart technology isn't just for entertainment. It also can be a powerful tool for improving Veterans' health. With the help of VA health care providers, more Veterans are using consumer devices, such as Apple Watches, to monitor their own health.

Kimberly Braswell, a nurse practitioner in the cardiology unit at the James A. Haley Veterans' Hospital in Tampa, Florida, has seen smart technology as an opportunity to connect with patients and improve their care plans.

Braswell helps treat atrial fibrillation (AFib), an irregular and often rapid heart rate that can increase a person's risk of stroke, heart failure and other heart-related complications.

Braswell recalled the excitement of Veterans when they learned of the devices' ability to measure and record health data. This data includes heart rate and physical activity level. She also noticed a larger trend in patient behavior too.

"Veterans using the watch want to be engaged in their health care. As a health care provider, that's the hardest part for us to accomplish with patients. I wanted to tap into this technology and make it work for us at VA."

Testing the timepieces

Today's Apple watches can perform an electrocardiogram (EKG). This is a non-invasive test that measures the electrical signals of the heart to detect abnormalities in heart rhythm.

In summer 2019, Braswell identified four Veterans to test the watches managing the patients' AFib. When the watch detected a Veteran was having heart rhythm irregularities, Braswell coached them on how to manage their symptoms and when to seek additional treatment.

In 2020, the pilot program expanded with a new name: VETERANS (Veteran Engagement Through Electronic Resources and Notifications Study). The pilot will include 25 Veterans who recently underwent a procedure to suppress AFib.

The post-operative patients use their VA-issued watches to detect if there's a recurrence of AFib. They will also meet on a monthly basis with their care teams through VA Video Connect, an app that allows Veterans to meet with their providers over a secure video connection. They will review the data gathered from their watches and discuss any symptoms they're having.

"One of the greatest powers of mobile technology is that it empowers patients to feel engaged and in control of their health care," Braswell said.

Testing telehealth

The pilot is also incorporating other telehealth modalities. Veterans are taught how to send their EKG results to their provider through secure messaging on My HealtheVet. Once received, the provider adds the information to the Veterans' medical records. In addition, Veterans are receiving automated text notifications through the Annie App for Veterans.

"We're also incorporating the Annie app to promote a healthier lifestyle and reduce risk factors for AFib," said Braswell. "Automated reminders about activity, sleep, nutrition, blood pressure — these are all things we use the Annie app for to engage the Veterans in their health care so they can see the correlation in how these things impact their overall health."

Veterans connecting with other Veterans An unforeseen, but equally important, success of the pilot is the connections Veterans are making with other Veterans. Robert Kreisel is one of the four original patients in the pilot. He now trains other Veteran participants to use their watch to record their health data.

Kreisel is pictured at the top of this story, on the far right, helping fellow Veterans set up their watches.

Braswell recalls Kreisel meeting fellow Navy Veteran Walter Zastrow. "They both immediately bonded over their shared service. They were able to communicate on the same level while being respectful and mindful of each other. That has really been one of the most rewarding parts for me — to watch Veterans engage with other Veterans."

Braswell continued, "The power of this little device is pretty impressive and I think we're just starting to tap into it. The more data providers have access to, the better they can understand their patients' needs and develop a tailored plan to fit their lifestyle."

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stryker

Enhance caregiver safety

Resuscitation of cardiac arrest patients affected by an infectious disease could compromise caregiver safety.

The **LUCAS® 3, v3.1 chest compression system** could help by reducing close contact during the provision of high-quality chest compressions.

The LUCAS device provides an extra pair of hands allowing medics and hospital staff to maintain distance and focus on treating the underlying cause.

The **American Heart Association**[1] and **US Department of Defense**[2] propose a role for mechanical CPR in resuscitation during the COVID-19 outbreak.

Learn more at strykeremergencycare.com or lucas-cpr.com

1. Edelson et al. Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19: *Circulation 2020* (https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.120.047463).
2. Matos RI et al. DoD COVID-19 Practice Management Guide; Clinical Management of COVID-19. https://www.usuhs.edu/sites/default/files/media/vpe/pdf/dod_covid-19_pmg14may20acc.pdf

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Veterans
EMERGENCY

Coronavirus ER

Helping patients better understand their risks can help them improve their safety and outcomes

Know the symptoms:

The new virus causes respiratory illness in humans, usually 2–14 days after exposure. Illnesses have ranged from mild symptoms to severe, including fever, cough, and shortness of breath. The virus is thought to spread mainly from close contact with an affected person. It spreads in the air, like flu, and through droplets from sneezes and coughs. The droplets can stay suspended in the air and can land on surfaces that are touched by others.

Understand the risks:

The Centers for Disease Control and Prevention (CDC) considers COVID-19 to be a serious public health threat, but individual risk is dependent upon exposure. For the general American public — those who are unlikely to be exposed to this virus at this time — the immediate health risk is low.

Remember the flu:

Symptoms of fever, cough and shortness of breath also happen to be symptoms of the common cold and flu. This year, at least 29 million flu cases have been reported with 280,000 hospitalizations and 16,000 deaths from flu. Flu activity most commonly peaks between December and February and can last until May.

Anyone can get the flu but patients are more likely to become infected if they:

- Have a weakened immune system
- Have frequent, close contact with young children
- Work in a health care setting where you may be exposed to flu germs
- Live or work with someone who has the flu
- Haven't received an annual flu shot

Take precautions to guard against infection:

- Get a flu shot
- Keep your hands clean by washing with soap and water for at least 20 seconds or using a hand sanitizer with at least 60% alcohol

Photo courtesy of the Department of Veterans Affairs

- Avoid touching your eyes, nose, and mouth
- Avoid people who are sick
- Stay home and away from others when sick
- Encourage them to cover coughs and sneezes with tissues or arm/sleeve. and to dispose of tissues in the trash.
- Keep surfaces clean using disinfecting wipes
- Check the CDC advisories prior to planning travel

Stay home and call their local VA medical center and select the option to speak to a nurse before visiting the facility if symptoms of fever, cough, and shortness of breath occur.

In addition to calling first, consider using VA's telehealth and virtual care options. VA's telehealth providers can evaluate your symptoms and provide a diagnosis and comprehensive care, without having to leave home or office.

va.gov

New Emergency Room Initiative for Geriatric Veterans at VA North Texas

By Jennifer Roy, public affairs specialist with the VA North Texas Health Care System

VA North Texas' Dallas Medical Center Emergency Department treats over 22,000 Veterans over the age of 65 each year. Two-thirds of these Veterans leave with a new prescription.

To better improve care for geriatric Veterans, VA North Texas launched a new initiative known as EQUiPPED, or the Enhancing Quality of Provider Practices for Older Adults in the Emergency Department.

"EQUiPPED is a quality improvement program focused on medication safety for older adults discharged from the Emergency Department," said Dr. Stephen Burgher, chief of emergency medicine service at VA North Texas.

New dashboard helps physicians

Physicians treating Veterans in the emergency department often prescribe their patients with a new medication before discharge. The new dashboard in EQUiPPED allows physicians to quickly access information on medications potentially harmful to older patients, allowing for the safest options.

Certain medications prescribed to a healthy middle-aged adult might not have the same effect as if prescribed to a geriatric. The result would avoid potentially inappropriate medications.

EQUiPPED has a large informatics piece to it, an order menu and recommended medications with appropriate doses for geriatric patients.

"What EQUiPPED represents is the quality improvement of this mission," said Dr. Rohit Manaktala, VA North Texas' Section Chief of Quality Training and Education for the Emergency Department. "This new program will educate our providers who are used to providing in a much more age diverse group and alter their practice patterns and more importantly their prescribing patterns to cater to the geriatric population."

VA North Texas is one of eight VA sites approved for EQUiPPED, and one of 12 VA-wide since 2012.

"We are all really excited to get EQUiPPED fully implemented here," said Jaimie Ostrom, VA North Texas ED Clinical Nurse. "I think it's really going to change and revolutionize geriatric emergency medicine nursing care."

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Photo courtesy of the Department of Veterans Affairs

Veterans
ENDOCRINOLOGY

Marine Veteran Commends VA Diabetes Campaign

By Hans Petersen, VHA Office of Communications

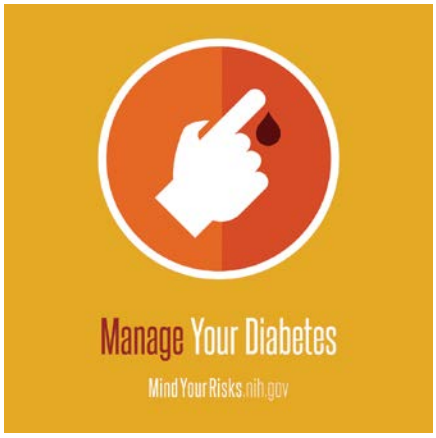
Marine Corp Veteran Allan Parish wants you to know about a new VA campaign aimed at giving Veterans a better understanding of their diabetes numbers.

The "Understand Your Diabetes Numbers" campaign educates Veterans and their families on the disease. For instance, it explains hemoglobin A1C, glucose meter, blood pressure and kidney tests and other vital measurements.

After all, Parish knows how important that information is. "I was taught how to care for myself as a type 1 diabetic and what the symptoms of hypoglycemia were," he said.

He receives care at the Parma VA community-based outpatient clinic.

One in four Veterans enrolled in VA health care services has diabetes. Consequently, this campaign encourages Veterans to be proactive with their health care teams by improving their understanding of diabetes test results.



Courtesy of U.S. Department of Health & Human Services

Marine Corp Veteran Allan Parish

Parish remembers he was constantly feeling run down. He drank large amounts of water and went to the bathroom frequently throughout the day.

"I knew something was wrong. Still, I didn't realize I was a Type I diabetic until I ended up in an emergency room in Cleveland after nearly blacking out.

"Being a Type 1 diabetic requires me to pay attention to all aspects of life. Eating, exercising, taking care of wounds immediately and getting proper rest. Everything I do affects my overall health and quality of life."

VA's Office of Patient Care Services oversees the year-long campaign, which addresses treatment goals, medication and nutritional management. In addition, key topics include understanding the importance of hemoglobin A1c test results. Finally, the program promotes shared decision making between Veterans and their health care team.

Veterans can learn about hypoglycemia safety, insulin differences and good nutrition and carbohydrate counting. Also, about kidney function and blood pressure measurement.

Choosing Wisely®, a collective effort among professional societies, guides VA's diabetes campaign. The goal is to reduce medical tests, treatments and procedures that may be unnecessary.

For more information, watch the VA videos Diabetes is a Disease of Numbers and Healthcare Teams Helping Veterans Understand Diabetes Numbers.

Parish adds that receiving health care from VA "lead me to become a better person and, finally, I feel great!"

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Veterans
ENDOCRINOLOGY

Innovative Treatment for Vets with Type 2 Diabetes

By Jamie D. Davis, PhD, Health System Specialist with the VHA Office of Community Engagement

Currently, VA offers medical care including diet counseling, weight loss programs, and blood glucose monitoring for the 1.5 million Veterans enrolled in VA health care who have Type 2 diabetes.

Insulin resistance in people with Type 2 diabetes — a hormone that helps move sugar into cells — causes high blood glucose levels. This, in turn, may cause other health problems, such as damage to nerves and blood vessels, increased risk of stroke or heart disease, or kidney failure.

More than 50 percent of Veterans using VHA health care are overweight and many Veterans with a Type 2 diabetes diagnosis carry excess body weight.

VA's Office of Specialty Care Services is leading a new partnership with Virta Health Corporation focusing on reversing Type 2 diabetes through noninvasive treatments including dietary guidance and the use of medical specialists' expertise, peer support, and health coaching.

Through this partnership, Virta will offer free individualized diabetes management to a limited number of Veterans for the length of treatment, which is typically one year. This small pilot of Veterans with non-insulin dependent Type 2 diabetes is designed for 400 patients.

This partnership with Virta will add to the current Type 2 diabetes care offered by VA. Veterans will receive support from Virta's care team, comprised of medical providers and health coaches, and close guidance in following an individualized low carbohydrate nutrition plan.

The pilot is meant to improve health signaled by meaningful improvements in blood sugar and reduction of dependence on prescription medications.

VHA's Office of Community Engagement (OCE) is a trusted resource and catalyst for the growth of effective partnerships at the national, state, and community level, and facilitates establishment of partnerships such as this one.

Working with nongovernmental community partners supports Veterans' freedom of choice in health care, and expands access to care and services that augment what VHA offers. This exemplifies VHA's priority of bringing Veterans quality care, wherever they are, through partnerships.

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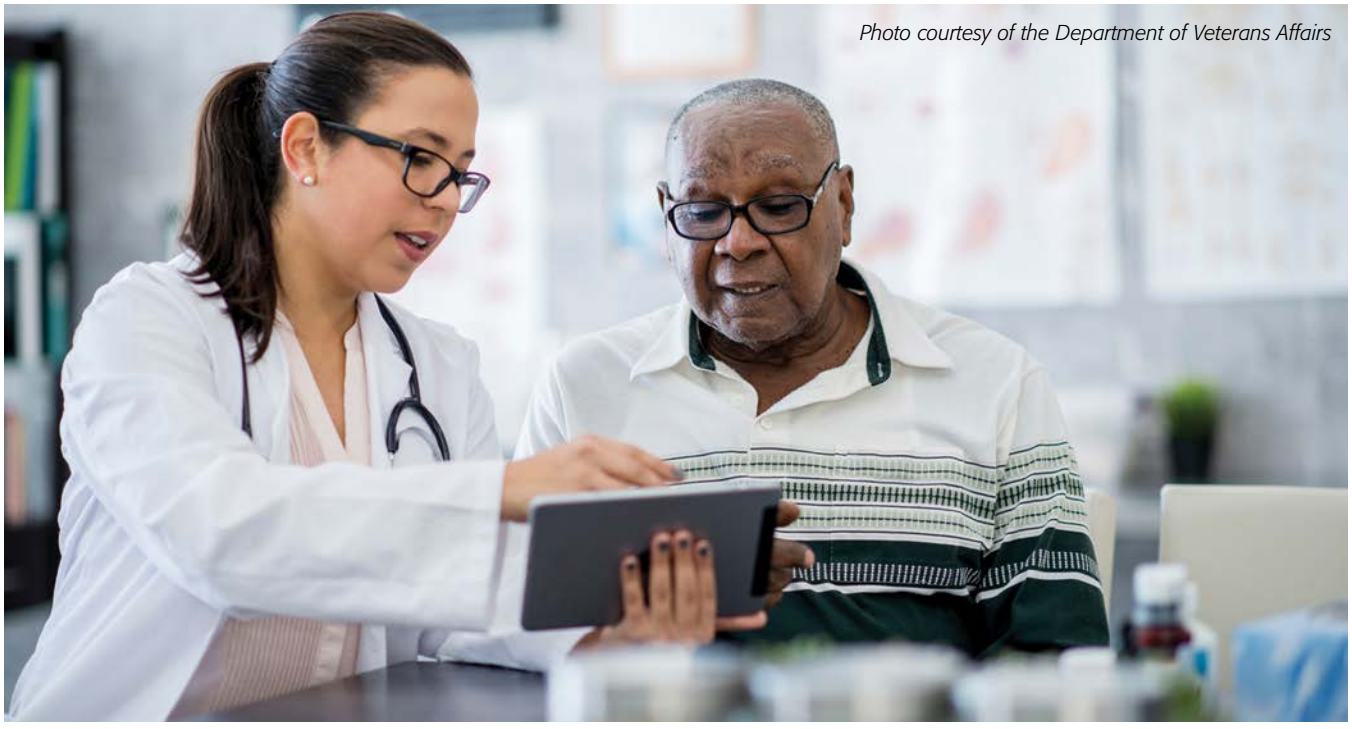


Photo courtesy of the Department of Veterans Affairs

Low Blood Sugar Episodes among the Top Three Drug-related ER Visits

By Dr. Tracy Weistreich, acting director of the VHA Office of Community Engagement (OCE)

When thinking about likely reasons for rushing to the emergency department (ED), severe low blood sugar may not come to mind. The data tells a different story. Low-blood sugar, or hypoglycemia, episodes are among the top three most common drug-related events that send Veterans to an ED.

Veterans can talk with their VA health care providers about the Hypoglycemia Safety Initiative (HSI), which offers simple tools to prevent such events. It can save Veterans the risk of developing more severe health problems, time at the hospital and money on medical bills.

HSI works with clinicians across federal agencies to educate patients who may be at risk of hypoglycemia. The program uses the Choosing Wisely theme to empower patients with tips for reading labels, counting carbohydrates and planning meals. The program may be particularly helpful for individuals who eat ready-made meals, such as MREs, or mess hall dining.

Photo courtesy of the Department of Veterans Affairs

VHA's national director of endocrinology and program lead for HSI, Dr. Leonard Pogach, says that improving health literacy is the key to reducing hypoglycemia. "By knowing what the numbers mean and how to make changes based on the numbers, Veterans can control their symptoms."

Food insecurity can also be a risk factor of hypoglycemic episodes when Veterans lack access to a stable, nutritious food supply. Data shows that ED visits for low blood sugar spike at the end of the month, when some Veterans run low on food supply or money for healthier meals.

Photo courtesy of the Department of Veterans Affairs

HSI teamed up with food-pantry initiatives at VHA to further strengthen its Choosing Wisely approach. The Red Bag Project out of a Cleveland-area medical center color-codes its bags of groceries to flag those that include special supplies for Veterans diagnosed with diabetes. Included in the bags are tips for managing diabetes, budget-friendly recipes and information on other resources.

Red Bag Project coordinator Mary Julius encourages Veterans to be open when VHA care teams ask about their food situations.

"I remember one Veteran who used to be a stockbroker. When I asked him about food, he put his head in his hands. 'All my assets are frozen,' he said, mentioning divorce. 'I've tried to sell things. But I have no food.' Through HSI, I was able to provide him with a bag of groceries. I also linked him with social services to reduce the risk of future serious hypoglycemic events."

For more information about HSI, visit https://www.qualityandsafety.va.gov/ChoosingWiselyHealthSafetyInitiative/HypoglycemiaSite/Frequently_Asked_Questions_for_Veterans.asp

va.gov

Veterans
ENDOCRINOLOGY

How Innovation and Partnership are Ending Diabetic Limb Loss at VA

Through innovative partnerships, VA is reducing hospitalizations and diabetic amputations

By Matthew Razak, Atlas Research

The Veterans Health Administration Innovation Ecosystem (VHA IE) is a leader in health care innovation, but it does not innovate alone. Using public-private partnerships, VHA IE draws in the best and brightest partners to solve challenges unique to the Veteran community. But what happens when an innovation shows value? How does VHA IE advance these promising solutions to change and save more Veteran lives?

VA's groundbreaking partnership with Podimetrics is a great example. This partnership is led by Suzanne Shirley, VHA IE Director of Partnerships & Community Engagement and clinical social worker. The partnership, named The Initiative to End Diabetic Limb Loss at VA (TIEDLLV), supplies at-risk, diabetic Veterans with mats that use thermal imaging to measure the temperature of a Veteran's foot. These mats can detect diabetic foot ulcers (DFUs) up to five weeks before they would normally present.

Veterans stand on the mat for 20 seconds each day, and their information is recorded and uploaded to the cloud. In the cloud, Podimetrics' advanced artificial intelligence (AI) system analyzes it for signs of DFUs. The preliminary impact was positive, with reductions in hospital admissions and amputations.

Success, however, does not mean innovation like this stands still, and Shirley — alongside Podimetrics CEO, Jon Bloom, and VA National Podiatry Chief, Dr. Jeffrey Robbins — saw a way to make the system work better for both Veterans and VA.

A massive challenge, impacting thousands of Veteran lives

A DFU can very easily lead to an amputation or even death for a diabetic Veteran. The most at-risk Veterans face a 5-year mortality rate of 43% after developing their first DFU. With 25 percent of Veterans suffering from diabetes, DFUs are a major concern for VA. Last year, VA treated 75,000 DFUs, which accounted for more than 80% of non-traumatic amputations in VA, resulting in a cost of more than $3.2 billion.

Catching these foot ulcers early, before they are even visible, can save limbs and lives. It is why VA has worked aggressively to spread remote temperature monitoring as a standard practice. Through the creation of a national task force, Shirley tested and scaled the devices across VA. This task force completed exhaustive quality assurance (QA) chart reviews, research investigations, and educational sessions. The team also streamlined the purchasing guidelines and redesign of preventative care models.

"I saw countless Veterans lose their lives because of complications from diabetic foot ulcers,"said Shirley. "I knew we had to tackle this problem and find a solution. Once we saw the results from the use of remote temperature monitoring, we worked to make sure that it became a part of VA's diabetic care."

Still, the program had challenges that needed to be fixed for it to scale across VA.

Innovating and adapting to improve Veteran care

By moving from treatment to prevention, VA providers can spend more time when it matters most and improve patient outcomes while reducing their workload. Despite the promise of preventative, tech-enabled services, the challenge in scaling is adapting such systems to current VA care models. Without adaptation, a technical solution like this is unable to fall into existing infrastructure, restricting funding and access to this technology.

Through extensive research and collaboration, TIEDLLV began integrating into VA's telehealth podiatry services. Thanks to this effort, the program is now at over 40 VA medical centers, with mats being prescribed to Veterans who are at the highest risk for amputation.

The results for Veterans are nothing short of staggering. Early QA data at participating sites has suggested that the Podimetrics system results in a near elimination of all severe ulcers, use of expensive graft product, and major amputations. In addition, hospitalizations dropped by 92%. The implications to diabetic Veteran care are dramatic.

As the program prepares to go national, VHA IE is engaging with partners to see how it can enhance and scale other impactful solutions to serve our Veterans. Through partnerships, VHA IE can combine the best of the private and public sectors to change and save Veterans lives.

va.gov

U.S. Department of Veterans Affairs Shares Successful New Strategies for Curing Hepatitis C Infection

By Corinna Dan, RN, MPH, Viral Hepatitis Policy Advisor, Office of HIV/AIDS and Infectious Disease Policy, U.S. Department of Health and Human Services

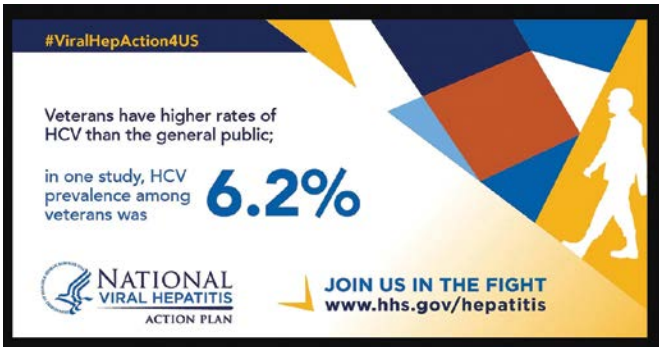
The Department of Veterans Affairs reported major progress on Hepatitis C using new strategies to ensure that veterans are screened, linked to care, and cured.

Every year in November, we celebrate and remember Americans who have served our country in uniform- our veterans. We recognize the importance of providing high quality health care for those who have served and one example of this is hepatitis C (HCV). The estimated chronic HCV infection rate for veterans who are in care is 4%, about three times that of the general U.S. population.

The Department of Veterans Affairs (VA) recently published an article in the Annals of Internal Medicine reporting major progress using new strategies for ensuring that veterans are screened, linked to care and treated for HCV. Since January 2014, the VA has treated more than 92,000 veterans with HCV infection, with cure rates exceeding 90%.

To reach this milestone, the VA implemented key actions for identifying and treating as many veterans with chronic HCV infection as possible. Overarching support for HCV treatment expansion included dedicated funding for HCV treatment, the establishment of Hepatitis C Innovative Teams to tailor efforts to address regional strengths and needs, and the use of national databases and analytics.

Photo courtesy of U.S. Department of Veterans Affairs



Courtesy of the National Viral Hepatitis Action Plan

Specific strategies for increasing testing and improving access to care include:

- Electronic point-of-care clinician reminders to conduct HCV risk assessment and testing
- Automated letters to veterans recommending HCV testing which can be used as lab orders at VA laboratories
- Expanded use of telemedicine
- Expanding HCV care beyond specialty providers to include primary care and other types of providers
- Integrating mental health and substance use disorder treatment with HCV care
- Creative strategies for financing HCV care

The VA points out that many of the strategies could be used in non-VA medical settings.

The National Viral Hepatitis Action Plan (Action Plan) has identified veterans as a priority population for national efforts to address the epidemic of HCV. The Action Plan is a strategic framework that highlights the commitment of more than 20 federal partners working together to fight viral hepatitis in partnership with states, counties, cities and hundreds of organizations around the country.

hhs.gov

Veterans
INTENSIVE CARE

Nevada VA Launches Tele-ICU Partnership

Technology provides around-the-clock bedside access to experts

By John Archiquette, Public Affairs specialist with the Southern Nevada Healthcare System

Veterans receiving intensive inpatient care in southern Nevada now have access to expanded critical care capabilities thanks to a new telehealth initiative at the North Las Vegas VA Medical Center.

On February 26 the VA Southern Nevada Healthcare System (VASNHS) went live with a Tele-ICU program in its intensive care unit (pictured right). Working in partnership with the VA Midwest Health Care Network's Regional Tele-ICU System in Minneapolis, this new capability provides local medical staff with around-the-clock bedside access to experts who are specially trained in the care of critically ill patients.

Photo courtesy of the Nevada VA

"This technology allows us to bring critical care nurses and intensivists (physicians who provide specialty care for critically ill patients) from all across the country to the bedside at the press of a button," said Dr. Matthew Goede, associate medical director for the VA Midwest Health Care Network's Regional Tele-ICU System, and a general surgeon on staff with the VA Nebraska Western Iowa Health Care System in Omaha, Neb. "It allows us to be a second level of support for the doctors and nurses at the bedside."

With the push of a special "eLert" button, a medical staff member at the North Las Vegas VA Medical Center contacts the Tele-ICU Support Center in Minneapolis, one of the two support centers serving VA hospitals throughout the country. An expert at the Tele-ICU Support Center will then connect into the room via a secure video link and offer assistance, making care recommendations based on a patient's condition.

"We can access the patients' records (to include labs and images), monitor vital signs, perform assessments, and provide on-site medical professionals with real-time critical care advice," said Dr. Robert Bonello, medical director for the Midwest Health Care Network's Regional Tele-ICU System and doctor of internal medicine at the Minneapolis VA Health Care System. "This allows both ICU teams to make more informed decisions regarding patient care."At the North Las Vegas VA Medical Center, 12 rooms are equipped with the Tele-ICU capability. As the VA continues to expand telehealth services, the technology could be used in other areas such as emergency departments and acute care rooms in the future. "This really opens up access for our Veterans," said Shari Kym, VASNHS' nurse manager for the ICU and Remote Telemetry. "As a specialty, ICU medicine is very limited in the number of intensivists, so this really provides a way for our ICU Veterans to have access to that type of specialty medicine."

At the North Las Vegas VA Medical Center, 12 rooms are equipped with the Tele-ICU capability. As the VA continues to expand telehealth services, the technology could be used in other areas such as emergency departments and acute care rooms in the future. "This really opens up access for our Veterans," said Shari Kym, VASNHS' nurse manager for the ICU and Remote Telemetry. "As a specialty, ICU medicine is very limited in the number of intensivists, so this really provides a way for our ICU Veterans to have access to that type of specialty medicine."

Filling critical care specialty positions is a struggle nationwide, and the VA and State of Nevada are not exceptions as the state currently ranks 47th nationally for physicians per capita and 48th for nurses. "Intensivists and experienced ICU nurses are at a premium across the country," said Goede. "Studies show that there is a shortage in many of those specialties. What Tele-ICU allows us to do

is amplify the care that these intensivists can provide without having to physically be in every location. It allows for a second opinion, it allows for a second set of eyes, and it provides a good adjunct to the care patients are already getting bedside."

Partnership with the Air Force

Nearly one in five VA ICU beds are equipped with Tele-ICU technology with the capability currently at 28 facilities in 15 states. In the future, the capability will expand to 40 medical centers in 25 states. The VA also recently launched a partnership to provide Tele-ICU support to the Department of Defense, with Nellis Air Force Base in Nevada becoming the first DoD facility with the technology. "This program started as a critical care collaborative just within our VA network," Goede said. "But as more and more sites began to get wind of it, we expanded it from there."

To meet its expansion goals, Bonello said VA network 23 has opened a new Tele-ICU sub-hub in conjunction with the activation of our virtual support program at the VA Southern Nevada Healthcare System. "This will allow VA intensivists to provide care to 20 additional VA medical centers around the country," he said.

"We're excited to begin this partnership with the Minneapolis VA and have this added expertise available to our staff and Veteran patients," said Dr. Ramu Komanduri, VASNHS chief of staff. "By expanding our VA capabilities with a semi-virtual presence such as Tele-ICU, we are able to ensure our Veterans have direct access to the same level of care and services, regardless of where they live."

va.gov

Photo courtesy of the Nevada VA

President Trump Releases PREVENTS Roadmap for Ending Suicide among Veterans and All Americans

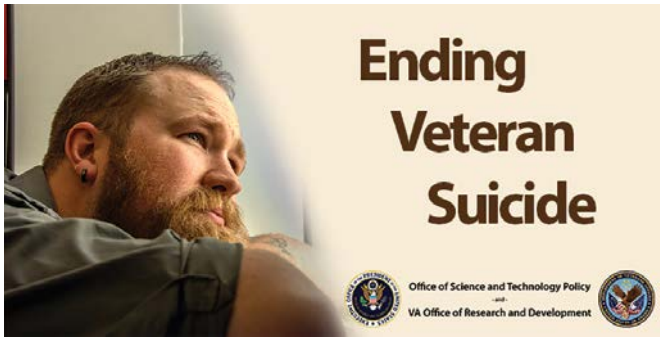


Photo courtesy of VA News, An official website of the U.S. Department of Veterans Affairs

The President's Roadmap to Empower Veterans and End a National Tragedy of Suicide (PREVENTS) is a landmark plan that engages Americans in a nationwide effort to prevent suicide, connect Veterans and others at risk to federal and local resources, and facilitate coordinated research on suicide prevention.

"My administration is taking steps to ensure that the men and women who bravely fought for us when they were called will be given the care and attention they need during some of their darkest hours," said President Donald J. Trump.

The roadmap is the result of an Executive Order that President Trump signed on March 5, 2019. It calls for several steps to advance this critical national goal, many of which are already underway:

National Suicide Prevention Activation Campaign

This summer, the PREVENTS Office will launch a nationwide public health campaign aimed at educating Americans that suicide is preventable. It creates awareness of mental health and suicide prevention best practices with a call to action for ALL Americans to take the PREVENTS Pledge to Prevent Suicide.

Improving Suicide Prevention Research

Too often, we focus on a one-size-fits-all approach to suicide prevention that fails to take into account an individual's specific risk factors. As a key element of the roadmap, PREVENTS will launch the National Research Strategy to accelerate the development and implementation of effective solutions to help prevent suicide among Veterans and all Americans.

Building Partnerships

The PREVENTS Office has built relationships with dozens of organizations across the country. These include Veteran and military service organizations, faith-based groups, universities, non-profits, corporations, small businesses. It also includes state and local governments to share best practices for promoting mental health, to ensure awareness of and access to federal, state, local and tribal resources.

Photo courtesy of the U.S. Department of Veterans Affairs

"The release of the PREVENTS Roadmap is a critical step in advancing the national priority of preventing suicide in this nation, but it is only a first step" said PREVENTS Executive Director Dr. Barbara Van Dahlen. "With our Veterans leading the way, we will engage all Americans as we fully implement the PREVENTS Roadmap. Together we will prevent suicide."

For more on PREVENTS, please visit: https://www.va.gov/prevents/

va.gov

Veterans
NEPHROLOGY

Kidney Paired Donation Improves Veterans' Quality of Life

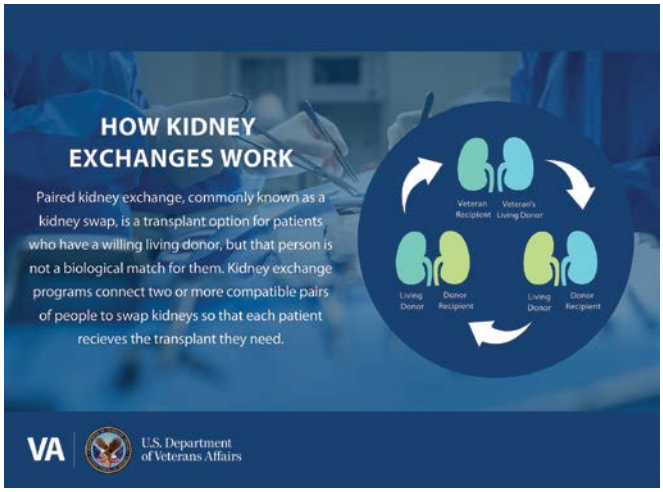
Like many Americans, Army Veteran Raymond Phillips suffered from chronic kidney disease, requiring him to undergo dialysis treatments multiple times a week. This grueling treatment schedule kept him tied to his home outside of Pittsburgh and prevented him from spending quality time with his seven grandchildren and two great-grandchildren.

That all changed last summer when Phillips, 78, and his son Chris, 46, participated in the Kidney Paired Donation (KPD) transplant program at the James J. Peters VA Medical Center in the Bronx, NY.

While the younger Phillips was willing to serve as a living donor for his father, he wasn't a match. That's when the older Phillip's VA care team stepped in to connect him with the Organ Procurement Transplantation Network's (OPTN's) KPD program. Through this program, the father and son were able to match with two other pairs of incompatible people to exchange matching kidneys.

Freed from dialysis and the side effects of chronic kidney disease, older Phillips can now travel to visit his son and spend time with his family.

"I haven't felt this good in ten or fifteen years," he said. "All the nurses, doctors, and LPNs at the James J. Peters VA Medical Center in the Bronx were fantastic. I couldn't have asked for a better team."



The Organ Procurement Transplantation Network's (OPTN's) KPD program enables two people to match with two other pairs of incompatible people to exchange matching kidneys. *Photo courtesy of James J. Peters VA Medical Center*

For more than 50 years, the VA Transplant program has provided Veterans with lifesaving services and lifelong care at each of the VA's eighteen transplant centers nationwide — six of which specialize in kidney transplants.

This three-way kidney swap was possible through the James J. Peters VA Medical Center's partnership with the United Network for Organ Sharing (UNOS), the non-profit that serves as the nation's transplant system. Many kidney patients can wait ten years or more for a conventional kidney transplant from a deceased donor. But just three years after his diagnosis, Mr. Phillips has a new kidney that may last the rest of his life.

More than 600,000 Veterans enrolled in VA health care receive treatment for chronic kidney disease each year. KPD transplants represent the best clinical option for Veterans because kidneys from living donors last longer and remove the need for dialysis almost immediately after surgery. Because transplant patients enter the program with a willing donor, it also means they often receive a transplant much faster than they would otherwise.

Several additional pairs of Veteran kidney patients and living donors are enrolled in the OPTN KPD program through a partnership with VA transplant centers in the Bronx, Pittsburgh, Houston, and Iowa City.

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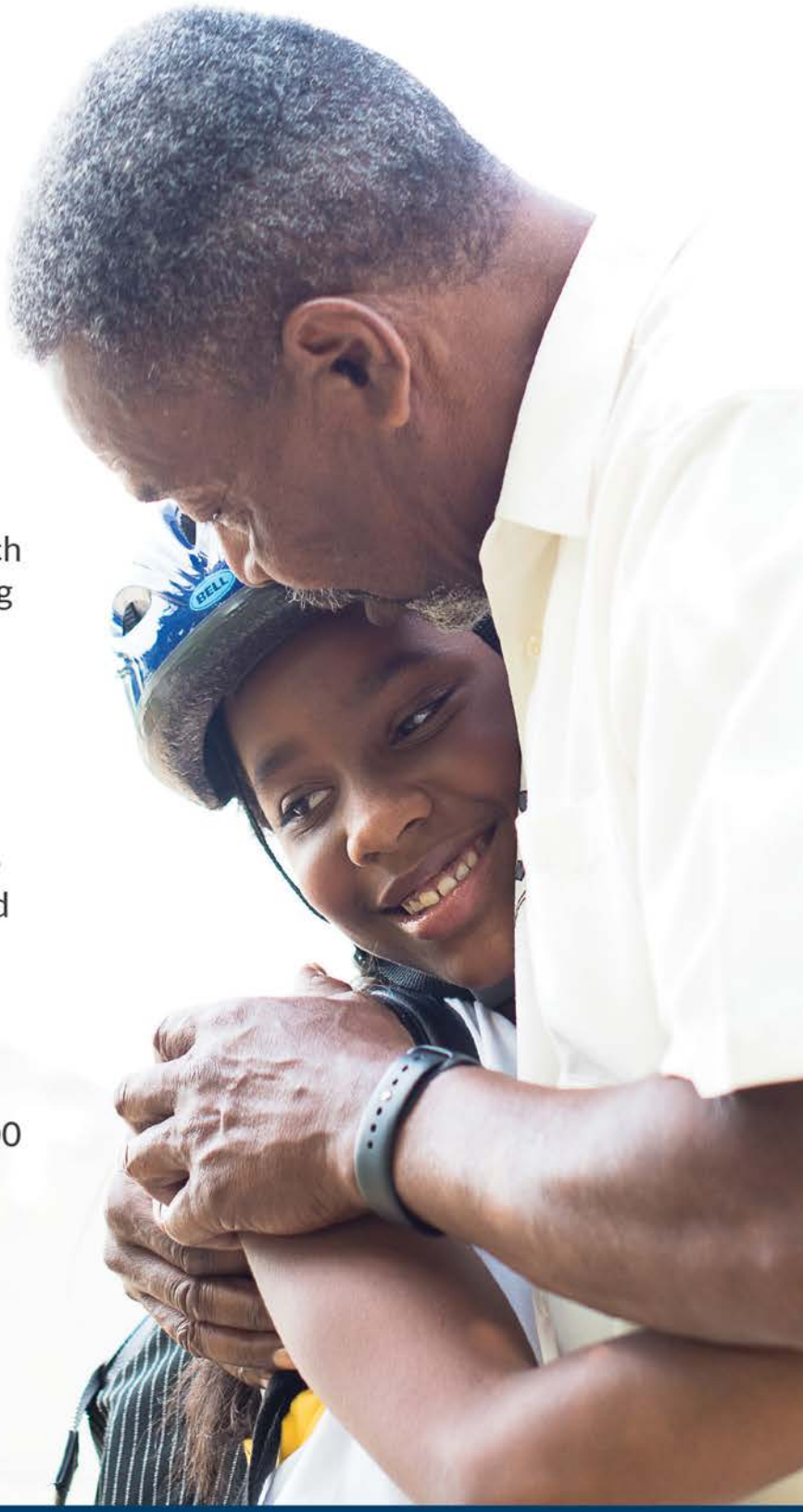
Partnering with the VA nationally since 2013.

For 20 years, DaVita's holistic approach to patient care has focused on treating the whole patient—not just the kidney disease.

Through new models of integrated care and innovative solutions, we aim to delay kidney disease progression, smooth the transition to dialysis if the kidneys fail, support home dialysis and promote kidney transplant as an ideal treatment option.

We've partnered with the U.S. Department of Veterans Affairs since 2013, providing seamless care to 6,300 veterans to help them live life to the fullest.



Stephen, veteran and DaVita patient

Learn more about partnering with DaVita at **DaVitaIKC.com**.

DaVita® Kidney Care

Veterans
NEUROLOGY

Veterans Who Deployed are More Likely to Develop Migraines or Headache Disorders

By Greg Bullock, VAntage Point Contributor

Migraine and other headache disorders can take an immense toll on a Veteran's physical and emotional health. From the physiological symptoms that can cause debilitating pain to the negative impact they may have on relationships or professional endeavors, these conditions can unfortunately follow a service member home long after their deployment.

Although medically classified as a "headache disorder," migraine has very distinct differences from what many would consider a typical headache. In addition to the presence of severe and/or lasting head pain, migraine attacks are characterized by other symptoms which may include: nausea; sensitivity to sound or touch; dizziness; and more. Another key indicator is migraine light sensitivity and other visual disturbances that are frequently reported by people with the condition. Ultimately, all of these symptoms reflect the neurological basis for migraine — indicating hyperreactivity in the brain that is often triggered by external stimuli. Moreover, attacks can last for hours or even days, and are considered chronic if a person experiences more than 15 in a month.

Unfortunately, Veterans are more likely to develop migraine or other persistent headache disorders than their civilian counterparts, according to research. In fact, one study showed that 36 percent of Veterans who had completed a 12-month deployment to Iraq were either diagnosed with or exhibited symptoms of migraine. In comparison, it has been estimated that migraine affects approximately 12 percent of the general population.

Photo courtesy of the National Institutes of Health

continued on page 142

TheraSpecs®

Therapeutic Blue Light Glasses

Blue light at 480nm is the most likely to cause pain and trigger symptoms in light-sensitive conditions.[1] **TheraSpecs filter up to 25 times more** of this harmful blue light than typical blue light glasses, providing better protection and more relief for:[2]

Migraine

Concussion

Vestibular disorders

Photophobia

Available through VA prosthetics departments.
Reference CAGE code **7LDF6**

theraspecs.com/military

military@theraspecs.com

Request research references, patient brochures, and an evaluation pair for your practice

[1]Tatsumoto M, Eda T, Ishikawa T, et al. "Light of Intrinsically Photosensitive Retinal Ganglion Cell (ipRGC) Causing Migraine Headache Exacerbation." IHC symposium OR3. June 2013. [2]Visible light transmission by wavelength measured using f.luxometer software https://fluxometer.com/page/measure/

continued from page 140

Although there have been broad genetic links to migraine, many researchers believe Veterans are likely to develop the condition as a result of their service in the military. In addition to increased exposure to stressful combat situations, servicemen and women have higher rates of traumatic brain injury (TBI), concussion (mild TBI), or neck trauma; this can be caused by explosions, falls or other accidents.

The post-traumatic headache that often follows these injuries dissipates for many within a few months, but in some cases it can persist longer or become chronic — especially if multiple traumas have occurred. Not surprisingly, migraine diagnoses increased by 27 percent among all branches of the armed forces from 2001-2007, according to a report by the Department of Defense.

The impact that migraine has on members of the military is also significant. For instance, the neurological and emotional consequences of mild or severe TBI can persist five or even ten years after the injury in rare cases.

Another analysis showed that 20 percent of soldiers with a history of deployment-related concussion went on to develop chronic daily headache, a condition with symptoms that resemble chronic migraine. Furthermore, Veterans often experience more severe pain and disability from their attacks than non-Veterans, and migraine can reduce their "return to duty" rates as well.

There is hope for Veterans who have migraine. It starts with a proactive approach that is focused on addressing the underlying condition. Here are a few recommendations to get started on the right path for treatment.

See a neurologist or headache specialist

The first step to treating service-related migraine is to visit a neurologist or headache specialist. This will help rule out complications from a prior injury or the existence of another condition and ultimately allow for a proper diagnosis. In addition, these professionals can help identify triggers and craft an individualized approach for treatment.

Develop a migraine prevention and treatment plan

A core strategy for migraine management is to establish a plan to reduce the frequency of attacks and treat attacks effectively when they do occur. Ideally, this plan will be formulated with the assistance of your doctor or neurologist, and it will often incorporate medication options — both for prevention purposes as well as acute medication designed to break an attack after it has started.

Alternative therapies may also be recommended, such as:

> Migraine and other headache disorders can take an immense toll on a Veteran's physical and emotional health. From the physiological symptoms that can cause debilitating pain to the negative impact they may have on relationships or professional endeavors, these conditions can unfortunately follow a service member home long after their deployment.

- Injections for chronic migraine
- Professional acupuncture
- Tinted glasses, which research shows can protect from indoor lights that can trigger migraine attacks, like screens and light bulbs
- Polarized sunglasses for outdoor use, bright sunshine and glare
- Dietary considerations
- Sleep pattern recommendations
- Stress management and relaxation techniques

In general, these treatments have differing levels of success and may not work for every Veteran, especially given that triggers vary from person to person as well as between attacks. However, these options do have a track record of helping in the prevention of migraine attacks, and they should be considered for a Veteran's care with the guidance of his or her doctor.

Lastly, a plan should also list out the locations of nearby hospitals or urgent care facilities for attacks that may require emergency attention.

Connect with your local VA

VA can be a great option for Veterans with migraine. VA is able to connect Veterans to a large network of doctors, neurologists and medical facilities that can help them better diagnose and treat their condition; it also can procure alternative treatment options through its VA benefits program on behalf of patients.

This can help decrease the reliance on prescribed medications and naturally reduce the impact of migraine or other headache disorders.

va.gov

Veterans
NEUROLOGY

VA Helping Migraine Sufferers with New Treatment

By Tom Cramer

We've all experienced a really bad headache at some point in our lives. But what if you were having a real head-splitter three or four times a week?

The good folks at the Salisbury VA in North Carolina might have discovered a cure for all that pain.

"One of my patients told me about this new device that was approved by the FDA in 2014," said Dr. Alton Bryant, a neurologist at Salisbury. "I've been prescribing it for about six months now. I think it's a solid treatment, certainly as good as our standard migraine medicines."

Photo courtesy of the Department of Veterans Affairs

"It's a futuristic-looking device that you place on your head, like a metallic headband," Bryant explained. "It sends electrical impulses back into your brainstem, where they interrupt your pain circuits. You need to wear it every day for at least 20 minutes. You can wear it more than that, if you want, but 20 minutes is the minimum. Using electrical impulses to control pain is called neuromodulation and it's a big focus in medicine right now."

The mysterious device goes by the name of Cefaly and looks like it was beamed down from the Starship Enterprise.

"I call it my 'Geordi device,' because that's what it looks like," said Marine Corps Veteran Rodney Harrington. (Lt. Commander Geordi La Forge, blind since birth, was the chief engineering officer on the USS Enterprise. He wore a special visor that enabled him to 'see.')

"I was kind of skeptical, but I gave it a try," Harrington said. "I went from having two to four migraines a week to having maybe two per month. It really works. I usually wear it in the afternoon or evening. It's very calming. It's kind of a good way to end the day."

Harrington, 44, said his Geordi device is a welcome alternative to the various pills he was taking daily to control his pain.

"The meds I was taking would make me feel like a zombie," he said. "I call them knock-out pills. But this thing just relaxes me. And it's small and lightweight, so whenever I go out of town I just throw it in my bag and take it with me.

"I haven't taken my meds in quite some time now," he added, "so this has definitely been a benefit. I've had migraine problems for 20 years and this is the first thing that's really made a difference for me."

"It's a preventative," observed Dr. Alton Bryant. "And like any migraine preventative it will work extremely well for some people, moderately well for others, and not well at all for some. I can say it's been beneficial for most of my patients. Well over half my patients have a moderate to very good response."

"That's true of any treatment," said the neurologist. "That's why we have 10 different pills for epilepsy. That's why we have so many different kinds of blood pressure medications. Everyone's different, and everyone will respond to a given treatment differently."

Bryant said migraines are the single biggest reason people visit a neurologist. "More people see a neurologist for migraines than dementia, stroke, or Parkinson's," he said. "We're fortunate to have Cefaly as an optional treatment, because here at VA we're trying to avoid prescribing meds whenever possible.

Army Veteran Brenda McClennaham gets acquainted with neuromodulation with a little help from Dr. Alton Bryant, a neurologist at the Salisbury VA in North Carolina

"You always have to worry about your patients not taking their meds correctly," the neurologist continued, "so we're always open to trying alternatives like Cefaly. Because even when your patients take their meds correctly, there's always side effects or interactions with other meds they're taking. Side effects can add up. But when you use electrical impulses to prevent pain, you don't have to worry about any of that."

"I was taking a lot of over-the-counter pain killers," said another of Bryant's patients, 53-year-old Randy Stegall. "And some of the prescription meds I was taking made me feel funny. I won't say this new device is a cure-all, but it's given me a lot of relief. You have to get used to the sensation, though. It kind of puts you in a very relaxed state. It's almost like meditating. You might not want to drive a car or operate heavy machinery right after using it."

Stegall, an Army Veteran, said the Cefaly device has only one notable drawback.

"When you first see it, you have to refrain from making a comical remark about it," he laughed. "It's definitely different-looking. When I put it on, I just tell people I'm going to take a few minutes to shock my brain and I'll be right back."

Different looking though it might be, but Cefaly appears to have had a distinct impact on the quality of Stegall's life.

"It's reduced the amount of meds I'm taking," he said. "When you've had a headache for 14 days, you're willing to try anything to get relief, and this thing works. If you're having issues with headaches, it's worth a try. It's a comfort, having it here, knowing I can use it whenever I need it."

"Initially, in the doctor's office, it felt kind of funny," said 49-year-old Army Veteran Mark Brooks. "I didn't think I would like it. But I wanted to give it a fair shot. So I took it home and kept using it. My migraines are real severe, but when I started using it consistently I stopped getting the severe ones as much.

"If my migraines were at a 10, they're probably at a six now," he added. "Six is better than ten."

Brooks said his pain never really goes away, which is why he's on three different medications in addition to his daily Cefaly treatment. He said he hopes the science of neuromodulation continues to advance so that perhaps one day he can be pain free.

"When I first started getting migraines, back in the 90s, I felt there was no way I could live with it," he said. "The pain was so severe. I felt like maybe I had a tumor or something and that I was going to die. But now I feel like there's more hope for me."

va.gov

"It's a futuristic-looking device that you place on your head, like a metallic headband," Bryant explained. "It sends electrical impulses back into your brainstem, where they interrupt your pain circuits. You need to wear it every day for at least 20 minutes. You can wear it more than that, if you want, but 20 minutes is the minimum. Using electrical impulses to control pain is called neuromodulation and it's a big focus in medicine right now."

Life doesn't stop for migraines. Meet life head on with CEFALY.

Over 2.7 Million Veteran Migraines Treated with CEFALY

63% of patients saw migraine pain significantly reduced by more than 50%, following one hour of treatment.[1]

One Device. Two Settings.

CEFALY is an easy-to-use medical device that is FDA cleared (prescription required) for:

- Acute treatment of migraine with or without aura in patients 18 years of age or older.
- Preventative treatment of episodic migraine with in patients 18 years of age or older.

CEFALY is Ideal for People with Migraine Who:

- Seek clinically proven effective alternatives to pharmaceuticals.
- Have prior medical conditions and are unable to take traditional pharmaceuticals.
- Have limited access to outpatient treatment procedures.

Safe & Well Tolerated

CEFALY has few side effects, which have been demonstrated to be minor and fully reversible through clinical trials.

Consult a doctor before use if:

- You are under 18 years of age.
- You are over 65 years of age.
- You are pregnant or may become pregnant.
- You suspect or know that you have heart problems.
- You had a recent head injury.

Do not use CEFALY if you:

- Have implanted metallic or electronic devices in the head.
- Are suffering from pain of unknown origin.
- Have cardiac pacemaker or implanted or wearable defibrillator.

"My VA neurologist recommended it to me. I've tried many different medications but those led to even more medications for other side effects. Being a veteran, oftentimes I'd just tough it out and wait for the migraine to go away but then it would be too late. In the morning I put it on and listen to a 20-minute meditation. CEFALY is really subtle and easy to use."

Simone – Richmond, CA – Coast Guard Veteran

Visit cefaly.com to learn more.

CEFALY is fully covered under VA benefits.

CEFALY® TECHNOLOGY

[1]Chou D.E. et al. Acute migraine therapy with external trigeminal neurostimulation (ACME): A randomized controlled trial. Cephalalgia. 2018; 39(1): 3-14.

NAYZILAM is indicated for the acute treatment of intermittent, stereotypic episodes of frequent seizure activity (i.e., seizure clusters, acute repetitive seizures) that are distinct from a patient's usual seizure pattern in patients with epilepsy 12 years of age and older.[1]

IMPORTANT SAFETY INFORMATION

CONTRAINDICATIONS

NAYZILAM is contraindicated in patients with acute narrow-angle glaucoma.

RISKS FROM CONCOMITANT USE WITH OPIOIDS

Concomitant use of benzodiazepines, including NAYZILAM, and opioids may result in profound sedation, respiratory depression, coma, and death.

- **Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate.**
- **Limit dosages and durations to the minimum required.**
- **Follow patients for signs and symptoms of respiratory depression and sedation.**

RISKS OF CARDIORESPIRATORY ADVERSE REACTIONS

Serious cardiorespiratory adverse reactions have occurred after administration of midazolam. Warn patients and caregivers about the risks of respiratory depression, cardiac and respiratory arrest.

Respiratory depression was observed with the administration of NAYZILAM during clinical trials. Cardiac or respiratory arrest caused by NAYZILAM was not reported during clinical trials.

CENTRAL NERVOUS SYSTEM DEPRESSION FROM CONCOMITANT USE WITH OTHER CENTRAL NERVOUS SYSTEM DEPRESSANTS, OR MODERATE OR STRONG CYP3A4 INHIBITORS

Drug products containing midazolam, including NAYZILAM, have a central nervous system (CNS) depressant effect.

Risks from Concomitant Use with Other CNS Depressants

NAYZILAM may cause an increased CNS-depressant effect when used with alcohol or other CNS depressants (e.g., opioids). Warn patients and caregivers that the use of NAYZILAM in combination with alcohol or other CNS depressant drugs may increase the risk of hypoventilation, airway obstruction, desaturation, or apnea and may contribute to profound and/or prolonged drug effect.

NAYZILAM was studied in a randomized, double-blind, placebo-controlled trial, conducted in 201 epilepsy patients (age 12 years or older) with a documented history of seizure clusters.[1]

The primary endpoint of treatment success included two components: the termination of seizures within 10 minutes after the double-blind (first) dose and no recurrence of seizures between 10 minutes and 6 hours (double-blind observation period).[1]

10 MINUTES TO STOP SEIZURE CLUSTERS[1]

- In 81% of patients, NAYZILAM terminated seizure cluster activity within 10 minutes.*[1]
- 58% of patients had no seizure recurrence between 10 minutes and up to 6 hours after drug administration.*[1]
- First-dose success was 54% for NAYZILAM-treated patients, and overall treatment success was 70% for those receiving any dose of NAYZILAM.[4]
- Serious cardiorespiratory adverse reactions have occurred after administration of midazolam. Respiratory depression was observed with the administration of NAYZILAM during clinical trials.[1]

90 MINUTES TO RETURN TO FUNCTION[2]

- For all seizure clusters treated with NAYZILAM, the median time to return to full baseline functionality† after trial drug administration was approximately 90 minutes.‡[2]

Please see Important Safety Information below and the accompanying Brief Summary of full Prescribing Information.

* Baseline duration of seizure clusters in NAYZILAM arm was a median of 65 mins (2.5-4320 mins)[3]
† Exploratory endpoint--time to return to full baseline functionality as determined by the caregiver[3]
‡ (range, 1.1–2.0 h)[2]

Risks from Concomitant Use with Moderate or Strong CYP3A4 Inhibitors

Concomitant use of NAYZILAM with moderate or strong CYP3A4 enzyme inhibitors may result in prolonged sedation because of a decrease in plasma clearance of midazolam. Caution patients against engaging in hazardous occupations requiring mental alertness, such as operating machinery, driving a motor vehicle or riding a bicycle until they have completely returned to their level of baseline functioning.

SUICIDAL BEHAVIOR AND IDEATION

Antiepileptic drugs (AEDs), including NAYZILAM, increase the risk of suicidal thoughts or behavior in patients taking these drugs for any indication. Monitor patients treated with NAYZILAM for the emergence or worsening of depression, suicidal thoughts or behavior, and/or any unusual changes in mood or behavior. Advise patients and caregivers to be alert for these behavioral changes and to immediately report them to the healthcare provider.

IMPAIRED COGNITIVE FUNCTION

Midazolam, including NAYZILAM, is associated with a high incidence of partial or complete impairment of recall for several hours following an administered dose. Counsel patients on when they can engage in activities requiring complete mental alertness, operate hazardous machinery, or drive a motor vehicle after taking NAYZILAM.

GLAUCOMA

Benzodiazepines, including NAYZILAM, can increase intraocular pressure in patients with glaucoma. NAYZILAM may be used in patients with open-angle glaucoma only if they are receiving appropriate therapy. NAYZILAM is contraindicated in patients with narrow-angle glaucoma.

ADVERSE REACTIONS

In the randomized, double-blind, placebo-controlled trial, the most common adverse reactions (≥5% in any NAYZILAM treatment group) were somnolence, headache, nasal discomfort, throat irritation, and rhinorrhea.

NAYZILAM IS A SCHEDULE IV CONTROLLED SUBSTANCE.

References: 1. NAYZILAM Prescribing Information. Smyrna, GA: UCB Inc. **2.** UCB, Data on File. Proximagen, P261-401 Tables. **3.** Detyniecki K, Van Ess PJ, Sequeira DJ, et al. Safety and efficacy of midazolam nasal spray in the outpatient treatment of patients with seizure clusters-a randomized, double-blind, placebo-controlled trial. *Epilepsia*. 2019;00:1-12. **4.** UCB, Data on File. Summary of Clinical Efficacy. Proximagen, LLC.

Nayzilam® (midazolam) nasal spray

Inspired by patients. Driven by science.

US-P-NZ-SC-2000023

Nayzilam® IV (midazolam) nasal spray

Brief Summary of Full Prescribing Information (See Package Insert for Full Prescribing Information)

Rx Only

WARNING: RISKS FROM CONCOMITANT USE WITH OPIOIDS
Concomitant use of benzodiazepines and opioids may result in profound sedation, respiratory depression, coma, and death *[see Warnings and Precautions (5.1), Drug Interactions (7.2) in Full Prescribing Information]*.

- **Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate.**
- **Limit dosages and durations to the minimum required.**
- **Follow patients for signs and symptoms of respiratory depression and sedation.**

INDICATIONS AND USAGE

NAYZILAM is indicated for the acute treatment of intermittent, stereotypic episodes of frequent seizure activity (i.e., seizure clusters, acute repetitive seizures) that are distinct from a patient's usual seizure pattern in patients with epilepsy 12 years of age and older.

CONTRAINDICATIONS

NAYZILAM is contraindicated in patients with:

- Known hypersensitivity to midazolam.
- Acute narrow-angle glaucoma *[see Warnings and Precautions (5.6) in Full Prescribing Information]*.

WARNINGS AND PRECAUTIONS

Risks from Concomitant Use with Opioids

Concomitant use of benzodiazepines, including NAYZILAM, and opioids may result in profound sedation, respiratory depression, coma, and death. Because of these risks, reserve concomitant prescribing of benzodiazepines and opioids for use in patients for whom alternative treatment options are inadequate.

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioids alone. If a decision is made to prescribe NAYZILAM concomitantly with opioids, prescribe the lowest effective dosages and minimum durations of concomitant use, and follow patients closely for signs and symptoms of respiratory depression and sedation. Advise both patients and caregivers about the risks of respiratory depression and sedation when NAYZILAM is used with opioids *[see Drug Interactions (7.2) in Full Prescribing Information]*.

Risks of Cardiorespiratory Adverse Reactions

Serious cardiorespiratory adverse reactions have occurred after administration of midazolam. These have included respiratory depression, airway obstruction, oxygen desaturation, apnea, respiratory arrest and/or cardiac arrest, sometimes resulting in death or permanent neurologic injury. There have also been rare reports of hypotensive episodes requiring treatment during or after diagnostic or surgical manipulations, particularly in patients with hemodynamic instability. Hypotension occurs more frequently in patients premedicated with a narcotic. The danger of hypoventilation, airway obstruction, or apnea is greater in elderly patients and those with chronic disease states or decreased pulmonary reserve *[see Use in Specific Populations (8.5) in Full Prescribing Information]*; patients with chronic obstructive pulmonary disease are highly sensitive to the respiratory depressant effect of midazolam.

Respiratory depression was observed with the administration of NAYZILAM during clinical trials *[see Adverse Reactions (6.1) in Full Prescribing Information]*. Cardiac or respiratory arrest caused by NAYZILAM was not reported during clinical trials.

Central Nervous System Depression from Concomitant Use with Other Central Nervous System Depressants, or Moderate or Strong CYP3A4 Inhibitors

Drug products containing midazolam, including NAYZILAM, have a central nervous system (CNS) depressant effect.

Risks from Concomitant Use with Other CNS Depressants

The potential for an increased CNS-depressant effect from concomitant use with alcohol or other CNS depressants (e.g., opioids) must be considered by the prescribing physician, and appropriate recommendations made to the patient and/or caregiver *[see Warnings and Precautions (5.1) and Drug Abuse and Dependence (9.3) in Full Prescribing Information]*.

Concomitant use of barbiturates, alcohol, or other CNS depressants may increase the risk of hypoventilation, airway obstruction, desaturation, or apnea and may contribute to profound and/or prolonged drug effect *[see Drug Interactions (7.3) in Full Prescribing Information]*.

Risks from Concomitant Use with Moderate or Strong CYP3A4 Inhibitors

There is a potential for prolonged sedation from concomitant use with moderate or strong CYP3A4 enzyme inhibitors because of much higher midazolam exposures *[see Drug Interactions (7.2) and Clinical Pharmacology (12.2) in Full Prescribing Information]*.

Suicidal Behavior and Ideation

Antiepileptic drugs (AEDs), including NAYZILAM, increase the risk of suicidal thoughts or behavior in patients taking these drugs for any indication. Patients treated with any AED for any indication should be monitored for the emergence or worsening of depression, suicidal thoughts or behavior, and/or any unusual changes in mood or behavior.

Pooled analyses of 199 placebo-controlled clinical trials (mono- and adjunctive therapy) of 11 different AEDs showed that patients randomized to one of the AEDs had approximately twice the risk (adjusted Relative Risk 1.8, 95% CI:1.2, 2.7) of suicidal thinking or behavior compared to patients randomized to placebo. In these trials, which had a median treatment duration of 12 weeks, the estimated incidence rate of suicidal behavior or ideation among 27,863 AED-treated patients was 0.43%, compared to 0.24% among 16,029 placebo-treated patients, representing an increase of approximately one case of suicidal thinking or behavior for every 530 patients treated. There were four suicides in drug-treated patients in the trials and none in placebo-treated patients, but the number is too small to allow any conclusion about drug effect on suicide.

The increased risk of suicidal thoughts or behavior with AEDs was observed as early as one week after starting drug treatment with AEDs and persisted for the duration of treatment assessed. Because most trials included in the analysis did not extend beyond 24 weeks, the risk of suicidal thoughts or behavior beyond 24 weeks could not be assessed. The risk of suicidal thoughts or behavior was generally consistent among drugs in the data analyzed. The finding of increased risk with AEDs of varying mechanisms of action and across a range of indications suggests that the risk applies to all AEDs used for any indication. The risk did not vary substantially by age (5-100 years) in the clinical trials analyzed. Table 1 shows absolute and relative risk by indication for all evaluated AEDs.

Table 1. Risk by Indication for Antiepileptic Drugs in the Pooled Analysis

Indication	Placebo Patients with Events/1000 Patients	Drug Patients with Events per 1000 Patients	Relative Risk: Incidence of Drug Events in Drug Patients/ Incidence in Placebo Patients	Risk Difference: Additional Drug Patients with Events per 1000 Patients
Epilepsy	1.0	3.4	3.5	2.4
Psychiatric	5.7	8.5	1.5	2.9
Other	1.0	1.8	1.9	0.9
Total	2.4	4.3	1.8	1.9

The relative risk for suicidal thoughts or behavior was higher in clinical trials for epilepsy than in clinical trials for psychiatric or other conditions, but the absolute risk differences were similar for the epilepsy and psychiatric indications.

Anyone considering prescribing midazolam or any other AED must balance the risk of suicidal thoughts or behaviors with the risk of untreated illness. Epilepsy and many other illnesses for which AEDs are prescribed are themselves associated with morbidity and mortality and an increased risk of suicidal thoughts and behavior. Should suicidal thoughts and behavior emerge during treatment, the prescriber needs to consider whether the emergence of these symptoms in any given patient may be related to the illness being treated.

Impaired Cognitive Function
Midazolam, including NAYZILAM, is associated with a high incidence of partial or complete impairment of recall for several hours following an administered dose. Gross tests of recovery from the effects of midazolam cannot be relied upon to predict reaction time under stress. It is recommended that no patient operate hazardous machinery or a motor vehicle until the effects of the drug, such as drowsiness, have subsided, and as their medical condition permits. For pediatric patients, particular care should be taken to ensure safe ambulation.

Glaucoma
Benzodiazepines, including NAYZILAM, can increase intraocular pressure in patients with glaucoma. Measurements of intraocular pressure in patients without eye disease show a moderate lowering following induction with midazolam. NAYZILAM may be used in patients with open-angle glaucoma only if they are receiving appropriate therapy. Patients with open-angle glaucoma may need to have their ophthalmologic status evaluated following treatment with NAYZILAM. NAYZILAM is contraindicated in patients with narrow-angle glaucoma.

Other Adverse Reactions
When midazolam was used for sedation, reactions such as agitation, involuntary movements (including tonic/clonic movements and muscle tremor), hyperactivity, and combativeness have been reported. These reactions may be caused by inadequate or excessive dosing or improper administration of midazolam; however, consideration should be given to the possibility of cerebral hypoxia or true paradoxical reactions.

ADVERSE REACTIONS

The following serious adverse reactions are discussed in more detail in other sections of the labeling:

- Risks from Concomitant Use with Opioids *[see Warnings and Precautions (5.1) in Full Prescribing Information]*
- Risks of Cardiorespiratory Adverse Reactions *[see Warnings and Precautions (5.2) in Full Prescribing Information]*
- CNS Depression from Concomitant Use with Other CNS Depressants or Moderate or Strong CYP3A4 Inhibitors *[see Warnings and Precautions (5.3) in Full Prescribing Information]*
- Suicidal Behavior and Ideation *[see Warnings and Precautions (5.4) in Full Prescribing Information]*
- Impaired Cognitive Function *[see Warnings and Precautions (5.5) in Full Prescribing Information]*
- Glaucoma *[see Warnings and Precautions (5.6) in Full Prescribing Information]*
- Other Adverse Reactions *[see Warnings and Precautions (5.7) in Full Prescribing Information]*

Clinical Trials Experience
Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice.

NAYZILAM was studied for the outpatient treatment of a single seizure cluster in 292 adult and adolescent patients with epilepsy (Study 1) *[see Clinical Studies (14) in Full Prescribing Information]*. The study was conducted in two phases; an open-label Test Dose Phase followed by a double-blind, placebo-controlled, Comparative Phase. The mean age of patients enrolled in the Comparative Phase (N=201) was 33 years, 51% were female, and 95% were White.

Table 2 lists the adverse reactions occurring in 2% or more of the NAYZILAM-treated patients and at a rate greater than the placebo-treated patients in the Comparative Phase of Study 1.

Table 2: Adverse Reactions[a] that Occurred in ≥2% of Patients (Any NAYZILAM) and Greater than Placebo in the Comparative Phase of Study 1

Body System/ Adverse Reaction	Placebo	NAYZILAM[b]			
		NAYZILAM 5 mg	Placebo + NAYZILAM 5 mg	NAYZILAM 5 mg + 5 mg	Any NAYZILAM Treatment Group
	N = 26 %	N = 91 %	N = 41 %	N = 43 %	N = 175 %
Nervous System					
Somnolence	4	10	10	9	10
Headache	0	7	0	2	4
Dysarthria	0	2	2	2	2
Application Site					
Nasal Discomfort	8	5	7	16	9
Throat Irritation	0	2	2	7	3
Rhinorrhea	0	3	0	5	3
Product Taste Abnormal	0	4	0	0	2
Eye Disorders					
Lacrimation Increased	0	1	2	2	2

[a] Adverse reactions that occurred within 2 days after NAYZILAM administration are included

[b] Patients in Study 1 were permitted to take a second, open-label dose of NAYZILAM 5 mg between 10 minutes and 6 hours following the initial blinded dose of NAYZILAM 5 mg or placebo if they experience seizure recurrence or an incomplete resolution of the episode. The Placebo + NAYZILAM 5 mg and NAYZILAM 5 mg + 5 mg columns represent patients who received a second dose of NAYZILAM 5 mg and received a blinded initial dose of placebo or NAYZILAM 5 mg, respectively.

For patients who experienced a decrease in peripheral oxygen saturation in the Test Dose Phase of Study 1, the decreases were generally transitory. Two patients (one with a history of sleep apnea and one with intercurrent seizure) with decreases in peripheral oxygen saturation in the Test Dose Phase required therapeutic supplemental oxygen.

DRUG INTERACTIONS

Table 3: Clinically Significant Drug Interactions With NAYZILAM

CYP3A4 Inhibitors	
Clinical Impact:	Concomitant use of CYP3A4 inhibitors may result in prolonged sedation because of a decrease in plasma clearance of midazolam.
Intervention:	Avoid co-administration of NAYZILAM with moderate or strong CYP3A4 inhibitors. NAYZILAM should be used with caution when co-administered with mild CYP3A4 inhibitors.
Examples:	Moderate CYP3A4 inhibitors: erythromycin, diltiazem, verapamil Strong CYP3A4 inhibitors: ketoconazole, itraconazole, clarithromycin
Opioids	
Clinical Impact:	The concomitant use of benzodiazepines and opioids increases the risk of respiratory depression because of actions at different receptor sites in the CNS that control respiration. Benzodiazepines interact at $GABA_A$ sites and opioids interact primarily at mu receptors. When benzodiazepines and opioids are combined, the potential for benzodiazepines to significantly worsen opioid-related respiratory depression exists.
Intervention:	Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate. Limit dosages and durations to the minimum required *[see Warnings and Precautions (5.1) in Full Prescribing Information]*.
Examples:	Morphine, hydrocodone, oxymorphone, codeine, fentanyl
Other Central Nervous System (CNS) Depressants	
Clinical Impact:	Concomitant use of barbiturates, alcohol, or other CNS depressants may increase the risk of hypoventilation, airway obstruction, desaturation, or apnea and may contribute to profound and/or prolonged drug effect.
Intervention:	Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate. Limit dosages and durations to the minimum required *[see Warnings and Precautions (5.3) in Full Prescribing Information]*.
Examples:	Other benzodiazepines and sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, opioids, alcohol.

USE IN SPECIFIC POPULATIONS

Pregnancy

Pregnancy Exposure Registry

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to antiepileptic drugs (AEDs), such as NAYZILAM, during pregnancy. Encourage women who are taking NAYZILAM during pregnancy to enroll in the North American Antiepileptic Drug (NAAED) pregnancy registry by calling 1-888-233-2334 or visiting http://www.aedpregnancyregistry.org/.

Risk Summary

There are no adequate and well-controlled studies of NAYZILAM in pregnant women.

Available data suggest that the class of benzodiazepines is not associated with marked increases in risk for congenital anomalies. Although some early epidemiological studies suggested a relationship between benzodiazepine drug use in pregnancy and congenital anomalies such as cleft lip and/or palate, these studies had considerable limitations. More recently completed studies of benzodiazepine use in pregnancy have not consistently documented elevated risks for specific congenital anomalies. There is insufficient evidence to assess the effect of exposure to benzodiazepines during pregnancy on neurodevelopment.

There are clinical considerations regarding exposure to benzodiazepines during the second and third trimesters of pregnancy or immediately prior to or during childbirth. These risks include decreased fetal movement and/or fetal heart rate variability, "floppy infant syndrome," dependence, and withdrawal *(see Clinical Considerations and Human Data)*.

Administration of midazolam to rats and rabbits during the period of organogenesis or to rats during late pregnancy and throughout lactation at doses greater than those used clinically did not result in any apparent adverse effects on development *(see Animal Data)*. However, published data for midazolam and other benzodiazepines suggest the possibility of neuronal cell death and long-term effects on neurobehavioral and immunological function in animals following prenatal or early postnatal exposure at clinically relevant doses. NAYZILAM should be used during pregnancy only if the potential benefit to the mother justifies the potential risk to the fetus. Advise a pregnant woman and women of childbearing age of the potential risk to a fetus.

In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively. The background risk of major birth defects and miscarriage for the indicated population is unknown.

Clinical Considerations

Fetal/Neonatal Adverse Reactions

Infants born to mothers who have taken benzodiazepines during the later stages of pregnancy can develop dependence, and subsequently withdrawal, during the postnatal period. Clinical manifestations of withdrawal or neonatal abstinence syndrome may include hypertonia, hyperreflexia, hypoventilation, irritability, tremors, diarrhea, and vomiting. These complications can appear shortly after delivery to 3 weeks after birth and persist from hours to several months depending on the degree of dependence and the pharmacokinetic profile of the benzodiazepine. Symptoms may be mild and transient or severe. Standard management for neonatal withdrawal syndrome has not yet been defined. Observe newborns who are exposed to NAYZILAM *in utero* during the later stages of pregnancy for symptoms of withdrawal and manage accordingly.

Labor and Delivery

Administration of benzodiazepines immediately prior to or during childbirth can result in floppy infant syndrome, which is characterized by lethargy, hypothermia, hypotonia, respiratory depression, and difficulty feeding. Floppy infant syndrome occurs mainly within the first hours after birth and may last up to 14 days. Observe exposed newborns for these symptoms and manage accordingly.

Data

Human Data

Congenital Anomalies

Although there are no adequate and well-controlled studies of NAYZILAM in pregnant women, there is information about benzodiazepines as a class. Dolovich et al. published a meta-analysis of 23 studies that examined the effects of benzodiazepine exposure during the first trimester of pregnancy. Eleven of the 23 studies included in the meta-analysis considered the use of chlordiazepoxide and diazepam and not other benzodiazepines. The authors considered case-control and cohort studies separately. The data from the cohort studies did not suggest an increased risk for major malformations (OR 0.90; 95% CI 0.61—1.35) or for oral cleft (OR 1.19; 95% CI 0.34—4.15). The data from the case-control studies suggested an association

between benzodiazepines and major malformations (OR 3.01, 95% CI 1.32—6.84) and oral cleft (OR 1.79; 95% CI 1.13—2.82). The limitations of this meta-analysis included the small number of reports included in the analysis, and that most cases for analyses of both oral cleft and major malformations came from only three studies. A follow up to that meta-analysis included 3 new cohort studies that examined risk for major malformations and one study that considered cardiac malformations. The authors found no new studies with an outcome of oral clefts. After the addition of the new studies, the odds ratio for major malformations with first trimester exposure to benzodiazepines was 1.07 (95% CI 0.91—1.25).

Neonatal Withdrawal and Floppy Infant Syndrome

Neonatal withdrawal syndrome and symptoms suggestive of floppy infant syndrome associated with administration of benzodiazepines during the later stages of pregnancy and peripartum period have been reported. Findings in published scientific literature suggest that the major neonatal side effects of benzodiazepines include sedation and dependence with withdrawal signs. Data from observational studies suggest that fetal exposure to benzodiazepines is associated with the neonatal adverse events of hypotonia, respiratory problems, hypoventilation, low Apgar score, and neonatal withdrawal syndrome.

Animal Data

When midazolam (0, 0.2, 1, or 4 mg/kg/day) was administered intravenously to pregnant rats during the period of organogenesis, no adverse effects on embryofetal development were observed. The highest dose tested, which was associated with minimal evidence of maternal toxicity, is approximately 4 times the maximum recommended human dose (MRHD) of 10 mg based on body surface area (mg/m^2).

When midazolam (0, 0.2, 0.6, and 2 mg/kg/day) was administered intravenously to rabbits during the period of organogenesis, no adverse effects on embryofetal development were reported. The high dose, which was not associated with evidence of maternal toxicity, is approximately 4 times the MRHD on a mg/m^2 basis.

When midazolam (0, 0.2, 1, or 4 mg/kg/day) was administered intravenously to female rats during late gestation and throughout lactation, no clear adverse effects were noted in the offspring. The high dose, which was not associated with evidence of maternal toxicity, is approximately 4 times the MRHD on a mg/m^2 basis.

In published animal studies, administration of benzodiazepines, including midazolam, or other drugs that enhance GABAergic neurotransmission to neonatal rats has been reported to result in widespread apoptotic neurodegeneration in the developing brain at plasma concentrations relevant for seizure control in humans. The window of vulnerability to these changes in rats (postnatal days 0-14) includes a period of brain development corresponding to that taking place during the third trimester of pregnancy in humans.

Lactation

Risk Summary

Midazolam is excreted in human milk. Studies assessing the effects of midazolam in the breastfed infant or on milk production/excretion have not been performed. Postmarketing experience suggests that breastfed infants of mothers taking benzodiazepines, such as NAYZILAM, may have effects of lethargy, somnolence, and poor sucking.

The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for NAYZILAM and any potential adverse effects on the breastfed infant from midazolam or from the underlying maternal condition.

Pediatric Use

Safety and effectiveness of NAYZILAM have been evaluated in the age group 12 to 17 years. Use of NAYZILAM in this age group is supported by evidence from an adequate and well-controlled study of NAYZILAM in adults and adolescents with seizure clusters *[see Clinical Studies (14) in Full Prescribing Information]* and pharmacokinetic and safety data from adult and pediatric patients *[see Clinical Pharmacology (12.3) in Full Prescribing Information]*.

Safety and effectiveness in pediatric patients below the age of 12 years have not been established.

Geriatric Use

Safety and efficacy studies of NAYZILAM did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Geriatric patients have longer elimination half-lives for midazolam and its metabolites, which may result in prolonged drug exposure. Geriatric patients may have altered drug distribution; diminished hepatic and/or renal function; and subjects over 70 years of age may be particularly sensitive *[see Clinical Pharmacology (12.3) in Full Prescribing Information]*. Administration of intramuscular (IM) midazolam to elderly patients has been associated with rare reports of death under circumstances compatible with cardiorespiratory depression *[see Warnings and Precautions (5.2) in Full Prescribing Information]*. In most of these cases, the patients also received other CNS depressants capable of depressing respiration, especially narcotics *[see Warnings and Precautions (5.1, 5.3) in Full Prescribing Information]*. Close monitoring of geriatric patients is recommended.

Renal Impairment

Based on a population pharmacokinetic analysis of patients administered NAYZILAM, midazolam and 1-OH midazolam pharmacokinetics are expected to be similar in subjects with mild renal impairment when compared to normal subjects. Safety and efficacy studies of NAYZILAM did not include patients with severe renal impairment and there were not enough subjects with moderate renal impairment in clinical studies for population pharmacokinetic analysis. Patients with moderate and severe renal impairment may have slower elimination of midazolam and its metabolites, which may result in prolonged drug exposure *[see Clinical Pharmacology (12.3) in Full Prescribing Information]*.

Congestive Heart Failure

Patients with congestive heart failure eliminate midazolam more slowly, which may result in prolonged drug exposure *[see Clinical Pharmacology (12.3) in Full Prescribing Information]*.

DRUG ABUSE AND DEPENDENCE

Controlled Substance

NAYZILAM contains the benzodiazepine midazolam, a Schedule IV controlled substance under the Controlled Substances Act.

Abuse

Benzodiazepines, such as midazolam, may be subject to abuse. Abuse is the intentional non-therapeutic use of a drug, even once, to achieve a desired psychological or physiological effect. Available data concerning the drug abuse and dependence potential of midazolam suggest that its abuse potential is at least equivalent to that of diazepam.

The pharmacological profile of NAYZILAM is similar to that of other benzodiazepines listed in Schedule IV of the Controlled Substance Act, particularly in its potentiation of GABAergic transmission through its action on $GABA_A$ receptors, which leads to sedation and somnolence.

Midazolam was actively self-administered in primate models used to assess the positive reinforcing effects of psychoactive drugs. Midazolam produced physical dependence of a mild to moderate intensity in cynomolgus monkeys after 5 to 10 weeks of administration.

Assessment of the abuse-related subjective effects comparing NAYZILAM to oral midazolam syrup was conducted in adult subjects with a history of benzodiazepine recreational drug use. No statistically significant or clinically-relevant differences in subjective positive effects (i.e., Drug Liking, Overall Drug Liking, Take Drug Again, and High) were observed between NAYZILAM and oral midazolam syrup. However, subjective positive effects on all these measures were significantly greater for NAYZILAM than for placebo confirming that NAYZILAM has abuse potential. Somnolence occurred at a similar rate in both midazolam groups, but euphoric mood occurred at a greater rate in NAYZILAM (4 to 16%) compared to the oral midazolam syrup (4 to 8.5%).

Dependence
Physical dependence is a state of adaptation that is manifested by a specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, decreasing blood levels of the drug, and/or administration of an antagonist.

Benzodiazepines can cause physical dependence. Physical dependence results in withdrawal symptoms in patients who abruptly discontinue the drug. Withdrawal symptoms (i.e., convulsions, hallucinations, tremors, abdominal and muscle cramps, vomiting, and sweating), similar in characteristics to those noted with barbiturates and alcohol, have occurred following abrupt discontinuation of midazolam following chronic administration.

Chronic Use
NAYZILAM is not recommended for chronic, daily use as an anticonvulsant because of the potential for development of tolerance to midazolam. In clinical trials, patients were treated with NAYZILAM no more frequently than every 3 days.

Chronic daily use of benzodiazepines may increase the frequency and/or severity of tonic-clonic seizures, requiring an increase in the dosage of standard anticonvulsant medication. In such cases, abrupt withdrawal of chronic benzodiazepines may also be associated with a temporary increase in the frequency and/or severity of seizures.

OVERDOSAGE

Symptoms

The manifestations of midazolam overdosage reported are similar to those observed with other benzodiazepines, including sedation, somnolence, confusion, impaired coordination, diminished reflexes, coma, and untoward effects on vital signs.

Treatment

Treatment of midazolam overdosage is the same as that followed for overdosage with other benzodiazepines. Respiration, pulse rate, and blood pressure should be monitored and general supportive measures should be employed. Attention should be given to the maintenance of a patent airway and support of ventilation, including administration of oxygen. An intravenous infusion should be started. Should hypotension develop, treatment may include intravenous fluid therapy, repositioning, judicious use of vasopressors appropriate to the clinical situation, if indicated, and other appropriate countermeasures. There is no information as to whether peritoneal dialysis, forced diuresis, or hemodialysis are of any value in the treatment of midazolam overdosage.

Flumazenil, a specific benzodiazepine-receptor antagonist, is indicated for the complete or partial reversal of the sedative effects of benzodiazepines and may be used in situations when an overdose with NAYZILAM is known or suspected. There are anecdotal reports of adverse hemodynamic responses associated with midazolam following administration of flumazenil to pediatric patients. Prior to the administration of flumazenil, necessary measures should be instituted to secure the airway, assure adequate ventilation, and establish adequate intravenous access. The reversal of benzodiazepine effects may be associated with the onset of seizures in certain high-risk patients. The prescriber should be aware of a risk of seizure in association with flumazenil treatment, particularly in long-term benzodiazepine users. The administration of flumazenil in cases of benzodiazepine overdose can lead to withdrawal and adverse reactions, including increased seizures. Its use in patients with epilepsy is typically not recommended.

PATIENT COUNSELING INFORMATION

See FDA-approved patient labeling (Medication Guide and Instructions for Use) and Patient Counseling Information section in the Full Prescribing Information available at www.NAYZILAM.com or at ucbCARES® 1-844-599-CARE (2273).

Manufactured for:
UCB, Inc., Smyrna, GA 30080

Inspired by **patients.**
Driven by **science.**

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Veterans
NEUROLOGY

Veterans and Epilepsy: Basic Training

By Winfield S. Danielson III

In an effort to address the stigma of epilepsy and educate Veterans, their caregivers and the general public about living with epilepsy, VA Epilepsy Centers of Excellence have developed a video series titled "Veterans and Epilepsy: Basic Training."

The video, now available on YouTube, focuses on the diagnosis of epilepsy. Subsequent videos will include topics such as, epilepsy medications, social issues faced by individuals living with epilepsy, seizure first aid, and traumatic brain injury (TBI). The goal is to promote public awareness of the impact of epilepsy on the lives of Veterans and show that these patients are able to live full, productive and successful lives.

"There is a culture of stoicism in the military, which prevents Veterans with epilepsy from reaching out to get more information about their epilepsy. Hopefully these videos will show Veterans and all individuals living with epilepsy they are not alone," said Stephanie Chen, epilepsy nurse practitioner with the San Francisco VA Medical Center.

Many consider traumatic brain injury, or TBI, to be the signature injury of the wars in Iraq and Afghanistan. According to the Department of Defense, 333,169 U.S. military Service members have been diagnosed with TBI since 2000, and the number is growing. In addition to symptoms such as memory problems, depression and posttraumatic stress disorder (PTSD), Servicemembers and Veterans with TBI are at greater risk for seizures and epilepsy.

"Veterans present unique challenges because their seizure-related psychosocial difficulties are often amplified by posttraumatic stress disorder and traumatic brain injury," said Dr. W. Curt LaFrance Jr., principle investigator for a pilot study of Veterans with epileptic seizures at the Providence VA Medical Center. "Among our goals of caring for Veterans with epilepsy is developing effective treatments for these psychosocial comorbidities."

The Providence VAMC has been using a 12-session seizure therapy intervention in Veteran patients with non-epileptic seizures and with epilepsy, which resulted in a reduction in seizures, improvement in anxiety and depression, and improvement in quality of life. The treatment has been used successfully for epilepsy in non-Veterans in prior pilot trials at other facilities.

Dr. W. Curt LaFrance Jr., principal investigator for a pilot study of Veterans with epileptic seizures at the Providence VA Medical Center, conducts a finger-tapping exercise with Veteran Ernest J. Avery as part of an exam at the Providence VA Medical Center. Avery served in Operation Enduring Freedom. *Photo by Winfield Danielson*

A grant from the Matty Fund, a Rhode Island-based nonprofit, in April 2015 is helping bridge treatments, research, training and education by supporting a Brown University student who worked with the study. This support is facilitating the Providence VAMC in providing seizure therapy for 20 Veterans with epilepsy in the pilot study. The Veterans will continue with existing treatment with their current care providers. Some will receive the additional seizure therapy provided as part of the study in order to compare a cognitive behavioral-informed psychotherapy with standard medical care by assessing seizures, co-morbid symptoms, quality of life and functioning.

To meet the needs of Veteran patients nationwide, VA created Epilepsy Centers of Excellence, or ECOEs, at 16 sites across the VA health care system, which are linked to four regional centers. The ECOEs strive to ensure high-quality care for Veterans with seizures, and conduct outreach, research and education efforts.

Veterans with seizures interested in seeking services at one of the ECOEs should speak with their primary care provider or neurologist who can help determine if the individual might benefit from the services provided by an ECOE, and assist with scheduling an appointment.

va.gov

Veterans
NURSING

Now More than Ever: A Week to Honor VA Nurses

National Nurses Week 2020

During National Nurses Week, we recognize the significant contributions that nurses make to keep America healthy. National Nurses Week is held annually May 6 through 12. May 12 is Florence Nightingale's birthday.

VA's nurses are a dynamic, diverse group of respected, compassionate professionals. VA is the national leader in creating an organizational culture where excellence in nursing is highly valued and considered essential for delivering quality health care to those who served America.

VHA employs over 100,000 nurses to provide care to Veterans. Nursing includes certified registered nurse anesthetists (CRNAs), registered nurses (RNs), licensed practical nurses (LPNs) and nursing assistants (NAs).

Here are just a few of those compassionate professionals.

Birmingham

Ashley Harrell received a DAISY Award. Birmingham VA physicians previously presented the RN with the first ever Excellence in Nursing Award. Harrell was a volunteer at VA before attending Jacksonville State University and the University of Alabama-Birmingham to study psychology and nursing.

"As a little girl, I grew up coming to this hospital with my grandfather, Paw Paw. I built this love and compassion for nurses because of the nurses I saw in this hospital. This is not just a job. We are changing lives. "This isn't about me. I don't need a reward. I have the best reward ever, and that is just being at the VA."

Oklahoma

Mary Ballard, home-based primary care (HBPC) RN and certified midwife, was selected as The American Legion's 2019 VHA Healthcare Provider of the Year. The American Legion recognized Ballard for the amazing care she provides Oklahoma Veterans and their caregivers through HBPC. Mary takes great pride in serving America's heroes. She is a Veteran as well.

Charleston

For Trervor Pham, working for the Veterans Health Administration is more than a career. It is a way to give back to America's Veterans. His parents are Vietnamese. Pham feels a special connection to Veterans and credits them for his success.

Buffalo

Five great nurses from the VA Western New York Healthcare System in Buffalo who traveled to New York City to help Veterans.

Nashville

Sandra Hendricks, an LPN at the Tennessee Valley Healthcare System (TVHS), is passionate about providing care to women Veterans. She also is passionate about crafting wreaths for women Veterans and TVHS staff. No matter the occasion, Hendricks always has a wreath displayed and creates a warm and welcoming environment.

Tuskegee, Alabama

As a young girl growing up in Auburn, Margaret Ewell had a passion for taking care of others. This passion set her on the path to become a nurse. At a very early age, she assisted in the care of her sick grandmother and wanted to do anything possible to save her. Since then, Ewell has received the DAISY Award, a national program to recognize the exceptional performances of nurses from around the country.

Lebanon, Pennsylvania

Beverly Miller saved a Veteran's life on her way to work, using her skills as a nurse. Miller saved Michael Byrd, an Army Veteran, by performing CPR when he collapsed during a run last year.

Baltimore

Sandra Beam wanted to be a nurse since she was four years old. She can usually be found in the U.S. Maryland Health Care System's Dermatology Service helping Veterans manage skin-related issues and cancers. Beam wants Veterans to know their health and welfare is of utmost importance. Through the Telephone Care Line, nursing staff are available 24/7. They have excellent triage skills and are front line contacts for our Veterans.

"This group of nurses provides advice to keep our Veterans safe at home to care for themselves. They can direct Veterans to seek additional medical care if needed, or, if appropriate, can call emergency responders to perform a wellness check."

VA salutes all our nurses this National Nurses Week.

va.gov

Veterans
NUTRITION

Dietitians Reshaping Veteran Health and Nutrition

"She saved my life."

Angela Moore-Romprey struggled with the loss of her husband. The 10-year U.S. Air Force Veteran had proudly lost 50 pounds attending a Healthy Teaching Kitchen class taught by nutritionist Dana Herring. However, the emotional toll led her back to the comfort of fast food, until Herring called her to invite her to an advanced class.

"She asked me if I wanted to be in the class," Romprey said. "It was a lifesaving thing at the time. I relearned how to put food together and use it. I lost that weight again, and she helped bring back my love of cooking."

Herring and fellow nutritionist Lauren Hill, MOVE! program coordinator, have become a one-two punch to combating obesity and unhealthy lifestyles among the Veteran population at the Phoenix VA Health Care System. Though separate classes, the weekly tutelage the nutritionists provide cover a wide range of health and nutrition guidelines to help the overweight Veterans.

"Motivating Overweight Veterans Everywhere — MOVE — is a 16-week program that gives Veterans information about a healthy lifestyle," Hill said. "Obesity is a problem. About, 80 percent of our Phoenix VA Veterans are available for MOVE services."

The MOVE! program is a weight management, health promotion program designed specifically for Veterans, but Hill's class encourages Veterans to take a proactive approach to their healthy living through a peer-support group.

Kenneth Long weighs 194 pounds, but when he began the MOVE! program he was 335 pounds. The eight-year Navy Veteran said he benefited tremendously from the group setting. He said the program offers peer support and changed his way of thinking about his weight. He no longer seeks a magic diet but adheres to a new, healthier lifestyle adding he no longer takes insulin for his diabetes and has severely decreased his need for medication for other weight-related medical issues.

"If Veterans don't know how to cook, it will be hard to apply nutrition recommendations from the MOVE! program or from the primary care dietitians," Herring said. "Whether their goal is weight loss or lowering blood sugar, it kind of brings everything full circle. It's a general healthful eating approach."

Photo courtesy of the James A. Haley Veterans' Hospital Tampa, Florida

The programs are national VA initiatives but dietitians are provided the freedom to run the programs to fit their population of Veterans. Dan Peitzmeyer said the current Healthy Teaching Kitchen is vastly different from the program he joined eight years ago. Herring took over the program in 2015 and developed massive informational cookbooks to provide to each Veteran attending her beginner and advanced classes.

March is National Nutrition Month and this year's theme is "Go Further with Food." The Phoenix VA dietitians organized a plant-based cooking event March 12 to celebrate the 2018 National Nutrition Month. Veterans were treated to demonstrations and hands-on practice in preparing plant-based foods, providing Veterans the knowledge, skill and tools to support a healthy eating pattern.

The Healthy Teaching Kitchen and MOVE! programs are available year-round to help Veterans make healthier food choices. Veterans interested in the programs should consult with their primary care doctor and schedule a group or individual appointment with the nutrition department at their local VA facility.

va.gov

Veterans
ONCOLOGY

Recognizing the Dallas VA Medical Center for Eliminating Liver Tumors and Returning Patients Home the Same Day

By Jennifer Roy, Public Affairs Specialist, VA North Texas Health Care System

The liver is one of the body's most important organs. It performs various critical functions to keep the body free of toxins and harmful substances. Unfortunately, some Veterans have Hepatitis C virus, a damaging liver infection, as the result of various exposures during their military service. In addition, these same Veterans are counted among the 42,000 Americans that are diagnosed with liver cancer and related tumors each year because of Hepatitis C.

Thankfully, VA North Texas' interventional radiology team is giving its affected patients an opportunity to eliminate these tumors with a procedure that can have them home and resting the very same day.

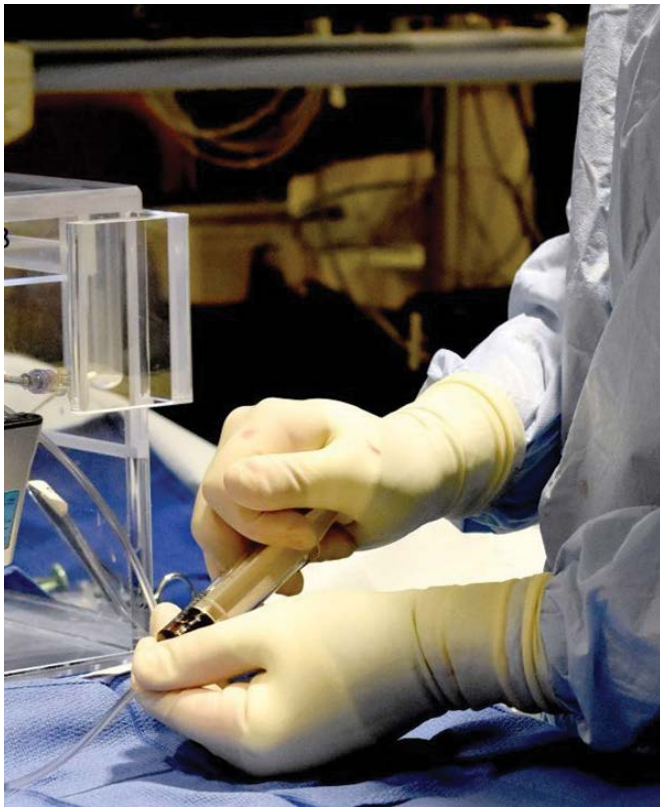
Y-90 Radioembolization is a minimally invasive procedure to treat and eliminate liver tumors without surgery. Tiny glass or resin beads filled with the radioactive isotope Yttrium-90 are placed inside the blood vessels that feed a tumor. This blocks the supply of blood to the cancer cells and delivers a high dose of radiation to the tumor while sparing normal tissue. It can help extend the lives of patients with inoperable tumors and improve their quality of life.

The interventional radiology and nuclear medicine teams work together to make this all possible. Nuclear medicine has a critical role in calculating the correct Y-90 dose for the patient, handling of the isotope, and the overall procedure safety.

"Y-90 is very good at treating the larger tumors and it's better than anything else available," said Dr. Jorge Lopez, interventional radiologist at VA North Texas. "Y-90 is an amazing outpatient procedure. The patient goes home that day, compared with surgery, where you may be in the hospital three to five days with a few months of recovery."

During a pre-screening, the patient gets an ultrasound on their liver and if there is something suspicious, they get an MRI or CAT scan to find the tumor.

Dr. Gordon Butler, VA North Texas interventional radiologist, conducts a Y-90 Radioembolization procedure on a patient at Dallas VA Medical Center. Y-90 is one of the newest procedures offered at the hospital.



Dr. Jorge Lopez, VA North Texas interventional radiologist, conducts a Y-90 radioembolization procedure on a patient at Dallas VA Medical Center. Y-90 is one of the newest procedures offered at the hospital.

"We have many patients with hepatitis C and a certain number of those will develop cirrhosis," said Dr. Gordon Butler, VA North Texas, an interventional radiologist. "A lot of time tumors are found early because of the screening program, and sometimes there are many tumors, or they are large, so one way to treat those patients is with Y-90."

The radiation from Y-90 continually decreases over a two-week period and disappears after 30 days. The tiny microspheres remain in the liver without causing any problems.

Y-90 offers VA North Texas patients a minimally-invasive way to prolong their quality of life and get them back to their families, friends and daily routines in a very short amount of time. For VA North Texas interventional radiologists, the procedure offers greater opportunity to blend technology and care.

"The mission of the VA is to repay a promise made to the Veterans by providing exceptional healthcare services," said Lopez. "This is one of the areas where we deliver that exceptional care."

About the author: Jennifer Roy is a retired USN Chief Petty Officer, public affairs manager and award-winning photojournalist.

va.gov

Veterans
ONCOLOGY

VA Study to Improve Outcomes for Liver Cancer Patients

By Mike Richman, Department of Veterans Affairs Research Communications Office

U.S. Veterans have a rate about five times greater than that of the general U.S. population for contracting Hepatocellular carcinoma (HCC), and this malignancy of the liver is one of the leading causes of cancer deaths worldwide.

At the same time, liver cancer is a complex disease that must be treated by experts from multiple disciplines working in concert: radiologists; hepatologists, who specialize in liver disease; oncologists, who specialize in cancer treatment; interventional radiologists, who focus on non-surgical cancer care; and transplant surgeons.

However, a limited number of VA medical centers have all of these experts in place and working together. Multidisciplinary liver cancer treatment teams are commonly found at university-affiliated VAs. But only 38 percent of VA facilities carry academic affiliation with universities with liver transplant programs, a much smaller fraction than the overall percentage of VA sites with academic ties.

Those are key conclusions in a VA study, published in March 2017 in Gastroenterology, that says patients getting care at VA hospitals with academic ties had "higher odds" of receiving active therapy for hepatocellular carcinoma, specifically a 97 percent greater chance. "Furthermore, because death in patients with HCC generally results from progressive liver failure, often requiring careful temperance of treatment decisions, patients require collaborative or multi-disciplinary care," the researchers write.

They add: "Future studies should further evaluate modifiable health system and provider-specific barriers to delivering high quality, multi-disciplinary care in HCC to optimize patient outcomes."

David E. Kaplan, MD, MSc, FACP, FAASLD, AGAF.
Photo courtesy of Penn Medicine

Lead author Dr. David Kaplan, a gastroenterologist and hepatologist at the Corporal Michael J. Crescenz VA Medical Center in Philadelphia, was recognized for his work. The study, titled "Association of Provider Specialty and Multi-Disciplinary Care with Hepatocellular Carcinoma Treatment and Mortality," was chosen as a top editor's pick in Gastroenterology for the month of June 2017.

"The problem isn't access to care, the problem is access to the best care," Kaplan says. "Smaller VA centers, like most rural community hospitals, don't have liver cancer experts. Typically, patients are diagnosed late by general gastroenterologists or general oncologists who don't see many liver cancer patients and aren't well-versed in treatment strategies. Also, they are not always savvy about which patients might be candidates for curative therapy."

Unfortunately, he says, most VAs that are not tertiary sites, which provide specialized health care, usually on referral from a primary or secondary provider, are missing critical "pieces of the puzzle" needed to treat liver cancer. "Furthermore, the types of specialists that are at Level 2 and Level 3 VA medical centers are generally not trained to recognize candidates for liver transplantation, which is the most successful treatment that can be offered for some early-stage patients with liver cancer," he says.

Kaplan has long specialized in the study of hepatocellular carcinoma, which accounts for about 95 percent of primary liver cancers in the United States. The roots of HCC often lie with hepatitis C, a blood-borne virus that causes progressive liver damage and cirrhosis over several decades of infection. Cirrhosis may lead to the development of HCC. Alcohol abuse and fatty liver are also frequent causes of cirrhosis among Veterans and can result in HCC.

The Veteran population has a high rate of hepatitis C, with 62 to 64 being the mean age of hepatitis C-related HCC diagnosis. Many in that demographic likely contracted the disease in the late 1960s and 1970s due to intravenous drug abuse and blood transfusions, says Dr. Tamar Taddei, a co-author of the study and head of the liver cancer program at the VA Connecticut Healthcare System.

Carlos Velez, a Marine Veteran who underwent a liver transplant in 2010 at the VA Pittsburgh Healthcare System, meets with clinician-researchers Drs. David Kaplan and Marina Serper at the Corporal Michael J. Crescenz VA Medical Center in Philadelphia. *Photo by Harry Maxwell*

"We see those folks in their 60s who have long established hep C, but now we're seeing a rise in hep C among 18- to 26-year-olds," she says. "That's pretty startling."

For Veterans to gain access to the best care, Kaplan points out that each of the 21 U.S. regions in the Veterans Integrated Service Network (VISN) includes at least one VA hospital with expertise to treat liver cancer patients. "The critical process that needs to happen is to break down the silos and create the networks for regional management," he says.

With that in mind, he and his colleagues launched a regional liver cancer tumor board for eastern VISN4, which includes parts of Delaware, Pennsylvania, and New Jersey, in 2014. He says the board came about largely because he was getting referrals from other VA sites where "patients were undergoing diagnostic imaging but radiologists were unaware of the proper liver imaging criteria for diagnosing liver cancer," he says. "By the time cases were being referred, cancers had progressed and patient treatment options had been compromised."

Now, any small facility in VISN4 such as the VA hospital in Lebanon, Pennsylvania, can present a liver cancer case to the board, which is based in Philadelphia. In 7 to 10 days, Kaplan says, the board will have suggested optimal treatment options for the patient that may include bringing him or her to the Philadelphia VA, which is affiliated with the University of Pennsylvania.

"So you don't have to live close to the expert center," he says. "You have to live close to a center with access to the experts at the expert center. That theoretically could be any VA."

One beneficiary of Kaplan's board is Air Force Veteran Pierino De Pari, who lives about two hours from Philadelphia in the town of Lebanon.

In 2015, doctors at the Lebanon VA Medical Center confirmed that De Pari, who had been diagnosed with hepatitis C about a quarter-century prior, had a tumor on his liver. They referred his case to the board, which recommended that he undergo a transarterial chemoembolization at the Philadelphia VA. Interventional radiologists there performed the non-surgical procedure, which delivers chemotherapy medication to blood vessels in the liver that lead to the tumor.

But the chemo wasn't a 100-percent cure. So the board told physicians at the Lebanon VA to refer him to the VA Pittsburgh Healthcare System, one of only six VA liver transplant centers in the country.

"Unfortunately, the general gastroenterologists in Lebanon don't always know which patients should be referred for transplant and which ones shouldn't," Kaplan says. "It's not their expertise, nor is it the expertise of the local oncologists. So prior to the formation of our regional board, a patient like that would likely undergo unnecessary liver biopsies and have delayed access to minimally invasive therapy. By the time he got referred to us, he might have been outside transplant criteria, or if still within criteria his referral to the transplant center may have been delayed."

After waiting four months for a new liver, De Pari underwent successful transplantation surgery at the Pittsburgh VA in January 2016. That facility houses a multidisciplinary team of liver cancer specialists because it's a university affiliated, high-volume liver transplant center, according to Kaplan.

The 57-year-old De Pari, who now has normal life expectancy, says the medical team was "professional all the way through."

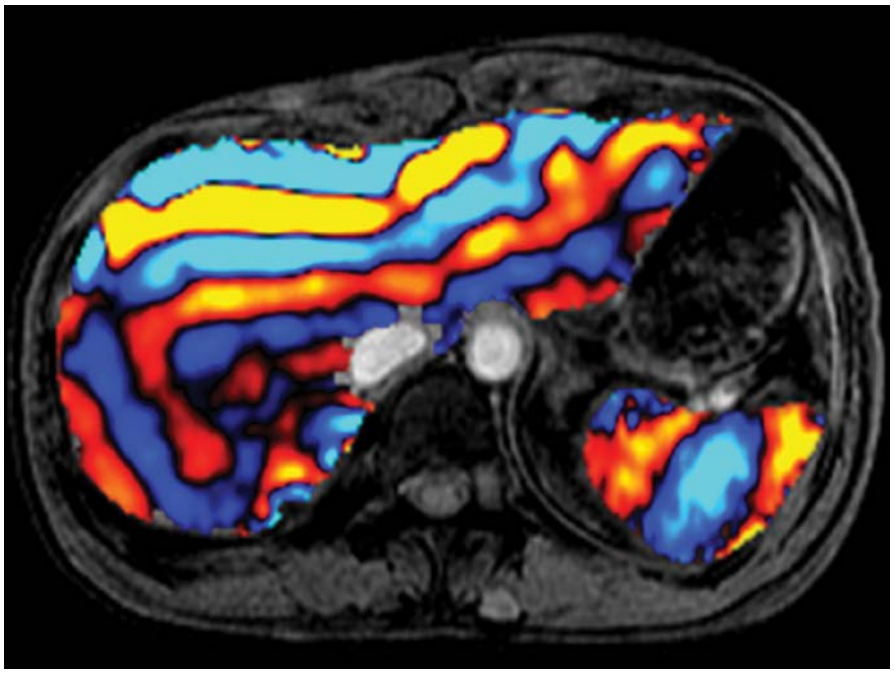
"I can't thank them enough," he says. "The whole team is one of the best in the country. I was told before I went in that it was an outstanding team, and after they did the operation I could see why."

It's success stories like De Pari that help fuel Kaplan's passion for his work. His study included nearly 4,000 patients who received liver cancer care from 2008 to 2010 at 128 VA medical centers. Doctors treated 69 percent of the patients at sites with academic affiliation. The majority of the patients lived in urban areas, where most academically affiliated VA facilities are located, and half lived within 74 miles of the closest VA hospital.

The critical factor in determining HCC treatment rates was the type of specialist a patient could access within 30 days of his or her cancer diagnosis. Care by

a general gastroenterologist was associated with a reduced likelihood of treatment. Oncology care was linked to higher rates of treatment. Hepatologists were associated with the highest reduction in mortality rate (30 percent, compared with not seeing a hepatologist). Treatment by multiple specialists and multidisciplinary teams led to significantly improved survival rates.

"Our data suggest that hepatologists are most selective at identifying patients that are candidates for aggressive therapy, and at singling out patients that are too sick and are better-serviced with approaches used to relieve suffering," Kaplan says. "As hepatologists, we are obviously biased but feel that liver cancer is a cancer that we're particularly well-suited to oversee."



Liver MRE. *Image courtesy of Dr. Richard Ehman, Mayo Clinic for the National Institute of Biomedical Imaging and Bioengineering*

U.S. Veterans have a rate about five times greater than that of the general U.S. population for contracting Hepatocellular carcinoma (HCC), and this malignancy of the liver is one of the leading causes of cancer deaths worldwide.

The study also finds that 24 percent of the HCC patients received no liver cancer care, but Kaplan downplays that statistic. He says studies using national Medicare data have estimated that about 35 percent of the general liver cancer population receive no active HCC treatment.

"Some of that is because non-treatment is sometimes appropriate," he says. "A patient with severely decompensated liver disease should not be treated, unless he or she is a transplant candidate. Similarly, a patient with widespread advanced stage cancer is unlikely to gain a survival advantage, and best supportive care measures such as a hospice may be more appropriate."

In Taddei's view, the private sector also faces hurdles in providing multidisciplinary care to liver cancer patients. "There are often many different providers involved, so these patients need somebody to help them navigate them through a fairly complex care process," she says. "It's equally difficult in the private sector, but VA's probably better able to understand and harness its resources in a concerted way."

In terms of location, the study concludes that patients in the mid-South region had the lowest odds of getting HCC therapy, at 38 percent. But Kaplan emphasizes that geographic factors played a limited role in impacting the survival of patients with hepatocellular carcinoma. He believes VA must instead "focus on improving access for patients who are diagnosed with liver cancer at smaller facilities and get them access to experts who are at the larger facilities."

Kaplan says he hopes the study will influence VA policy, namely greater implementation of regional liver cancer tumor boards. Because the data are from 2008 to 2010, he speculates that some changes may have already been made.

He and his team are now working on a new study that examines the cost of care for Veterans suffering from hepatocellular carcinoma. "I hope that once that dataset is published, VA Central Office will appreciate the magnitude of HCC expenditures and invest appropriate resources to optimize regional management," he says.

In the end, he believes any Veteran such as Pierino De Pari should have access to the "same excellent liver cancer care no matter which VA they walk into."

"Our vision would be that all VISNs incorporate regional liver cancer tumor boards," he says.

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Research Improves Tele-eye Screening for Veterans

Remote eye screening helps rural and underserved Veterans

By Erica Sprey, former U.S. Army Veteran and current writer with the VA Office of Research and Development and Managing Editor for VA Research Quarterly Update

In 2015, VA launched the Technology-based Eye Care Services program, or TECS. The tele-eye screening program now serves 22 VA facilities across the country.

TECS brings remote eye screening services to rural or underserved Veterans who might otherwise have limited access to a screening eye exam or new glasses. It is not intended to replace an in-person eye exam and is one of several options that Veterans can choose for their eye care.

Researchers study possible enhancements

VA's Dr. April Maa and coauthors recently published a study that tested the impact of adding of a special imaging test to the TECS screening exam. They found that adding optical coherence tomography (OCT) did not improve remote providers' accuracy in detecting glaucoma or retinal disease.

The researchers recommend further study. They believe OCT results might change with remote glaucoma or retinal specialists who are well-versed in reading OCT images.

Maa is the clinical director for regional telehealth services in VISN 7 Center, and section chief for TECS. The ophthalmologist divides her time among treating eye disease and performing surgery, helping Veterans preserve their vision, and training ophthalmology residents. TECS is her brainchild.

Maa and her team saw a need for tele-eye services within the VISN 7 catchment area, which includes many rural communities in Alabama and Georgia. She says that prior to TECS, Veterans at the Atlanta VA had long waits to see an eye doctor.

Passionate about eliminating disparities

"My entire team is passionate about health care disparities. Just because you live in [rural] Blairsville, Georgia, doesn't mean you should get less care than other people," says Maa. "Those system-based barriers are reduced with telemedicine. We can bring the patient a huge amount of subspecialty care that they might not otherwise have access to."

In TECS, technicians see patients at their primary care clinic. They gather a medical history, take vision measurements, and conduct a manifest refraction test. That test measures nearsightedness, farsightedness, and astigmatism.

Photo courtesy of the Department of Veterans Affairs

In the photo above, Nguyen Walker demonstrates the use of a digital retinal camera — an important part of remote eye screening — with Army Veteran Bill Beverley-Blanco (Photo by Lisa Pessin).

The technicians also measure eye pressure and photograph the retina. Once the visit is complete, the patient's data and photographs are shared with a remote eye specialist.

The specialist reviews the results, makes referrals, and prescribes eyeglasses or medication, if necessary.

Recommendation: Alternate with in-person exams

If patients need a follow-up visit, they receive a call from the provider. If everything is good, the patient receives a notice informing them of their results. Maa says the TECS screening should be alternated with regular in-person eye exams.

She says both rural Veterans and their health care providers value TECS.

"The patients love it and the primary care providers appreciate having eye services at the primary care clinic. We have been able to pick up a lot of very serious eye disease in our Veterans to prevent blindness and get them timely access to care."

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Veterans
OPTOMETRY

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Optometry is an essential part of VA, especially since there are more than one million visually impaired Veterans over the age of 45 in the United States. That's why it's important for us to raise awareness of our services as well as our career opportunities in the field.

From primary to advanced care, we provide a wide range of eye treatment options. This includes comprehensive low-vision rehabilitation services that help patients enhance skills such as communication, orientation and mobility. Through these offerings and more, we're improving the lives of Veterans nationwide — and we invite you to consider doing the same as a VA optometrist.

You'll be part of a collaborative team environment with access to inspirational leaders and the latest technology, helping you perform at your best every day while continually growing as a professional. You will also be recognized for your achievements and rewarded in many ways, including outstanding benefits such as generous paid time off, flexible scheduling and other perks that support a healthy work-life balance. Above all, you'll enjoy the unmatched fulfillment that comes with serving patients who've served our country.

Photo courtesy of the Department of Veterans Affairs

Contact Ms. Kathy Gernhart, Administrative Officer, Optometry Service at Kathleen.Gernhart@va.gov or call 410-637-4754.

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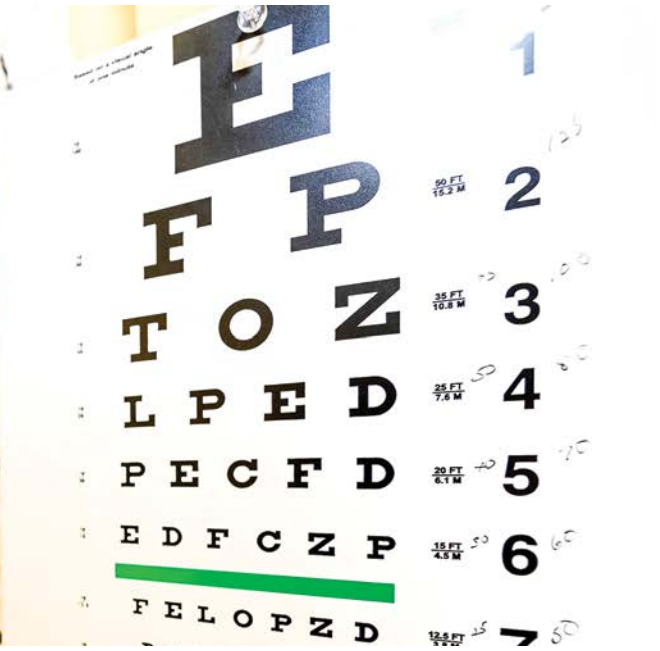

Photo courtesy of the Department of Veterans Affairs

Veterans
ORAL CARE

Create Positive Experiences as a VHA Dentist

VHA dentists are dedicated to providing quality care to each and every patient

By Dan Green

Passion — the No. 1 characteristic an individual looking to become a VHA dentist should have. Joining our team is more about your connection to humanity, and less about accolades from putting "Dr." next to your name. Affirming confidence and brightening our patients' smiles is what drives our VHA dentists every day.

Candidates with passion and the appropriate educational background are encouraged to apply. See what VHA offers for employee training.

"I saw that…VA has so much to offer as a training facility that during the application process I decided to apply only to the residency program in the Veterans' hospital" says Dr. June.

Potential entry-level VHA dentists can also earn their doctorate in dental surgery or dental medicine resulting from a course of education in dentistry. The degree must have been obtained from one of the schools approved by the Secretary of Veterans Affairs.

VHA dentists must also be skilled in:

- Information management — maintaining patient confidentiality per HIPAA, and following computer security regulations.

Photo courtesy of the Department of Veterans Affairs

- Monitoring patient conditions during treatment, and being alert for signs of physical distress.
- Performing a full range of duties with indirect supervision.

At VHA, we understand a trip to the dentist can be quite uncomfortable for the bulk of our patients, so our job is to make them feel as content as possible. Our dentists do this by providing a positive customer service experience: being open to any questions patients might ask, practicing courtesy and respect, and keeping a positive attitude in order to make every dentist visit for our patients a success.

If you're drawn to taking care of others and looking to enter the field of dentistry, head to our career page today and explore our opportunities for dentists, dental hygienists, dental assistants and dental lab techs. For other exciting health care opportunities with VHA, explore VA Careers and Join VA.

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Joining our team is more about your connection to humanity, and less about accolades from putting "Dr." next to your name. Affirming confidence and brightening our patients' smiles is what drives our VHA dentists every day.

Veterans
ORAL CARE

3D Technology Expedites Veterans' Dental Care

3D models help plan surgery

By David Adriansen, VISN 23 Simulation Program Director, Minneapolis VA Health Care System

Army Veteran Mark Gehrke had been missing his teeth for years and his upper jaw had significant bone problems.

His dentist, Dr. Christopher French, created a 3D printed model of his upper jaw to plan the surgical placement of four dental implants, using the model as a guide to plan the placement of the implants. Gehrke was thankful: "I appreciate getting the best care possible."

3D technology helps create guides for dental implant placement and medical models which aid in surgical planning. A digital capture is transferred to a 3D Printer or Dental Mill to create the dental surgical guides or other products needed to support Veteran Patient care.

In 2018, there were over 600 patients needing surgical guides and 185 patients needing intra-oral occlusion guides at the Minneapolis VA.

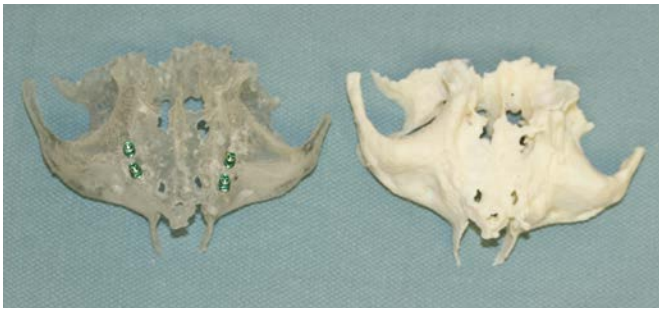
Currently, Veterans travel to and from many VA Dental Clinics with waiting times up to six weeks for oral surgery and dental appliances primarily due to turn-around times from outsource vendors. Access and care are improved when VA Dental Clinics are able to create dental appliances in-house with faster service for Veterans.

Cast costs down from $50 to $5

The addition of a 3D printer enables the adoption of a more efficient in-house process for the production of dental arch casts impacting 3,000 patients annually. A cast made using plaster costs $50 each or $150,000 annually. With a Dental 3D printer, the "cast" is made directly from the intra-oral scan at a cost of $5 each or $15,000 annually.

The Veterans Integrated Service Network 23 Dental 3D Scanning, Printing and Milling Project is placing Oral 3D Scanners in each VA Dental Clinic for dentists to scan Veteran teeth for use in milling or 3D modeling. Currently all 11 Dental Clinics within VISN 23 outsource for dental bridges, crowns, night guards and dental appliances.

The Minneapolis VA Dental Clinic has been using 3D printers and intra-oral scanners to improve patient outcomes and increase efficiency in Veteran care.



Using a 3D Printer, Dr Christopher French created these models of Veteran Mark Gehrke's sinus. *Photo courtesy of the Department of Veterans Affairs*

Dr Kirby Amonson: "With this initiative, the VA Midwest Region will become the first VA Network to convert operations from wet cast molding to digital dentistry and minimize or eliminate the outsourcing of crowns, bridges, night guards and other services for our Veterans". Amonson is the VISN 23 Dental Lead and a strong supporter of 3D technology.

Saving time and increasing satisfaction

"Use of 3D printing is a significant movement within the VA for improving Veteran patient care through reducing clinical and surgical times while increasing Veteran satisfaction," according to Dr Thomas Girvan, Chief, VA Central Dental Laboratory in Dallas, TX.

Dr Beth Ripley, Chair, VHA 3D Printing Advisory Council, is driving the national vision on centralizing 3D technology efforts within the Veterans Health Administration. Multiple VA facilities have been active in using 3D Printers for Research, Prosthetics and Pre-surgical modeling.

Ripley noted, "One of the immediate impacts on improving clinical care and operations via 3D technology is in the Dental Service. The VISN 23 Digital Dentistry Initiative establishes a model within the VHA for Dental Clinics transitioning to Oral 3D Scanning and Printing. As a result of this transition, VISN 23 will also be the first Network to host a 3D Printer in each of their VA Hospitals."

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Veterans
PHYSICAL THERAPY

VA Offers Inpatient Rehab Services to Help Veterans Regain Independence

By Tiffani Mathews, Public Affairs TCF Intern at the Eastern Oklahoma Health Care System

Each year the Inpatient Rehabilitation (Rehab) unit at the Jack C. Montgomery VA Medical Center helps numerous Veterans regain and achieve their highest level of independence.

Lanise Jamerson, nurse manager who has worked 18 years for VA, says the main goal of rehab is to get Veterans as close to functioning for themselves as possible after illness or injury.

"I don't think people realize how well inpatient rehab works to get people back to their normal lives," said Jamerson. "My husband had a stroke and it really helped us when we got home. We want our Veterans to realize it not only helps them as the patient, but their loved ones as well."

The hospital's 15-bed Rehabilitation Unit provides acute rehab services 24 hours a day, seven days a week. The team consists of professionals, skilled in many different areas, who are available to provide service to Veterans in harmony with other providers at VA.

Katie Watson, physical therapist, works with Army Veteran James Fast in the Inpatient Rehabilitation Unit before he is discharged to go home. *Photo courtesy of the Department of Veterans Affairs*

Dr. David Jennings, physiatrist, moved to the VA just over a year ago from the private sector and says he really loves the work he gets to do here.

"The VA is a smaller, more connected setting, so when someone leaves rehab, I can tag their Primary Care provider in the notes," said Jennings. "We want to help our Veterans accomplish their goals and get home. We do what we can to help them be successful."

Customized care plan

Rehab partners with Veterans, their families, and caregivers to set goals and create a customized care plan. Plans may include family training and educational support to help with a safe transition home, something Army Veteran James Fast and wife Debbie recently had experienced.

Fast, who served as a military policeman from 1972-1974, was discharged from the Inpatient Rehab Unit at the end of January, after spending 157 days in various hospitals.

"All I can say is that I've had blessings and miracles," said Fast. "My experience at the VA has been very good, and everyone has been so positive. They gave me the incentive and motivation to keep pushing. No one thought I would be this far and it's amazing. I'm sore and tired, but it's worth it."

Fast's wife, Debbie, has been by his side watching him go through one health issue after another, including a stroke, blood clots, and a brain bleed.

"We've been on a long journey, but the care we have received in rehab at the Muskogee VA has been wonderful," said Debbie. "The aides, therapists, nurses, doctor, social worker, and everyone else involved just made it an enjoyable experience. This was the first place I felt comfortable to leave him by himself at night to stay home and do things I needed to do. He was barely walking a step or two when we first got here, but now he can stand, sit, get up out of the bed and is walking with his walker. It is amazing what all they've done, and we just feel so blessed to have had the opportunity to come here."

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Veterans
PULMONOLOGY

Coping with COVID-19: Help for Veterans with Lung Disease

Resources for Vets from the American Lung Association

By Randolph C. Moler, licensed clinical social worker with the Office of Community Engagement

As the novel coronavirus disease (COVID-19) pandemic spreads across the globe, one organization currently in talks with VA as a potential partner is providing helpful information and resources to Veterans and the public. The American Lung Association (ALA) is working to save lives. Specifically, it is improving lung health and preventing lung disease through education, advocacy and research.

The virus that causes COVID-19 affects the respiratory system. ALA's expertise in this area enables the organization to share science-based information to all Americans during this public health crisis.

According to ongoing VA research on respiratory health, Veterans may suffer from respiratory diseases due to exposure to respiratory hazards in combat. Those diseases include lung cancer, asthma and chronic obstructive pulmonary disease. They place Veterans at greater risk for additional harm from COVID-19.

ALA is working to do several things in light of the pandemic. All are designed to educate the public, including Veterans, on ways to stay safe. ALA also supports relief efforts and provide a forum for individuals to ask questions of experts directly.

The organization is accomplishing these goals by:

- Hosting 30-minute webinar updates every Monday at 1 p.m. CT, which will provide new information on COVID-19 and address questions from individuals living with chronic lung diseases.
- Creating its COVID-19 Action Initiative, a $25 million investment that will work with public and private entities to increase research collaboration and develop new vaccines, detection tests, and treatment therapies.
- Promoting its Lung HelpLine (1-800-LUNGUSA) and online submission form for people to ask questions about lung diseases and COVID-19, as well as smoking cessation.
- Sharing up-to-date information on topics such as COVID-19 signs and symptoms, stopping the spread, and addressing myths about lung illnesses on its blog, "Each Breath."

Working to minimize the risk to all

ALA's National President and CEO is Harold P. Wimmer. Wimmer says, "We are working to provide information and support to minimize the risk to all. We're especially concerned about those with a lung disease like asthma, COPD, or lung cancer. After all, those individuals are at higher risk for more severe symptoms or complications from COVID-19."

Dr. Tracy L. Weistreich is the acting director of the Veterans Health Administration (VHA) Office of Community Engagement (OCE). OCE supports partnerships throughout VA and VHA. Weistreich spoke to the importance of ALA's work right now.

"Many Veterans already suffer from respiratory illness and would find ALA's resources beneficial even outside the context of a global pandemic. During COVID-19, though, these resources are especially valuable. As is the case with partnerships between VA and other nonprofit organizations, ALA can contribute to helping Veterans by adding to the services VA is already providing."

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InCourage vest therapy is a drug-free way to clear excess mucus from the lungs. Ask your doctor if the InCourage system may be right for you.

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Veterans
PULMONOLOGY

VA Airborne Hazards and Open Burn Pit Registry Reaches Major Milestone

The U.S. Department of Veterans Affairs' (VA) announced the Airborne Hazards and Open Burn Pit Registry now exceeds 200,000 registrants as of May, 2020.

The registry, which began in June 2014, allows Veterans and service members to self-report their exposures and health concerns in an online questionnaire that can be used to initiate discussions of health concerns with a provider.

"Concerns about the long-term effects of exposure to burn pits remain a priority," said VA Secretary Robert Wilkie. "By joining the registry, Veterans, service members and the department will further understand the impact of deployment-related exposures on health."

The Department of Defense encouraged registry participation in a letter to more than 700,000 active-duty, Guard, and Reserve members, which ultimately helped push participation beyond the 200,000 mark.

In addition to completing a questionnaire, registry participation involves an in-person exam by a provider. However, in response to the COVID-19 pandemic, most VA facilities are deferring exams to protect registry participants, medical staff and other patients.

Burn pits were a common way to get rid of waste at military sites in Iraq and Afghanistan.

Toxins in burn pit smoke may affect the skin, eyes, respiratory and cardiovascular systems, gastrointestinal tract and internal organs.

Veterans who were closer to burn pit smoke or exposed for longer periods may be at greater risk. Health effects depend on a number of other factors, such as the kind of waste being burned and wind direction.

U.S. Air Force Senior Airman Frances Gavalis, 332nd Expeditionary Logistics Readiness Squadron equipment manager, tosses unserviceable uniform items into a burn pit at Balad Air Base, Iraq, on March 10, 2008. Military uniform items turned in must be burned to ensure they cannot be used by opposing forces. *DoD photo by Senior Airman Julianne Showalter, U.S. Air Force.*

Most of the irritation is temporary and resolves once the exposure is gone. This includes eye irritation and burning, coughing and throat irritation, breathing difficulties, and skin itching and rashes.

The high level of fine dust and pollution common in Iraq and Afghanistan may pose a greater danger for respiratory illnesses than exposure to burn pits, according to a 2011 Institute of Medicine report.

Waste products in burn pits include, but are not limited to: chemicals, paint, medical and human waste, metal/aluminum cans, munitions and other unexploded ordnance, petroleum and lubricant products, plastics, rubber, wood, and discarded food.

Burning waste in open air pits can cause more pollution than controlled burning, such as in an incinerator.

Eligible Veterans and service members include those who served in:

- Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn
- Djibouti, Africa on or after September 11, 2001
- Operations Desert Shield or Desert Storm
- Southwest Asia theater of operations on or after August 2, 1990

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Veterans
RHEUMATOLOGY

For Veterans with Arthritis, VA Offers a Variety of Treatment

By Kelli Allen, Associate Director of the Center for Health Services Research in Primary Care at the Durham VA Health Care System

Did you know that arthritis affects 1 in 5 adults in America? Did you know that arthritis is our nation's #1 cause of disability and that two-thirds of arthritis sufferers are working-age adults who are striving to stay employed in the face of pain and functional limitations?

The burden of arthritis is even greater among U.S. military Veterans. About 1 in 3 Veterans has arthritis. About half of all Veterans with arthritis report limitations in their daily activities because of joint symptoms.

May is Arthritis Awareness Month. It's a time for us to pay attention to the tremendous impact arthritis has among Veterans, and to the ongoing need for new, better treatments. It's also a time to focus on what Veterans, their health care providers and their communities can do now to face arthritis as a team.

Researchers are working hard to understand the causes of arthritis and to develop better treatments, and ultimately a cure. In the meantime, arthritis is best managed with a combination of clinical therapies (like medicines) and healthy behaviors. Years of research have shown that physical activity and weight management help to improve pain and function for people with arthritis. But it can be hard to exercise when your joints hurt!

So Veterans with arthritis need tools and a team of supporters to help them stay active and manage their arthritis. Here are some tips and key resources for Veterans with arthritis:

- Take advantage of online and community-based physical-activity and arthritis-management programs. The Arthritis Foundation provides a set of free, online tools that can guide Veterans and others with arthritis in appropriate exercise and healthy eating, identify local arthritis management programs, and connect people with arthritis for mutual support.
- See a physical therapist. Physical therapy is a recommended part of care for arthritis, but many individuals with arthritis do not receive physical therapy until years after diagnosis, or don't receive it at all. Physical therapists can help Veterans with arthritis to address functional limitations, develop a home exercise program, and meet needs for knee braces or assistive devices that can help with daily tasks. The Durham VA Healthcare System delivers a group-based physical therapy program that was found in a research study (funded by VA Health Services Research and Development) to be as effective as individual physical therapy, and it has the added benefit of peer support.
- Try something new! There is emerging evidence that some complementary and integrative health approaches can be helpful for people with arthritis. Yoga, tai chi and massage therapy are three examples of treatments Veterans may want to try.

Photo courtesy of the Department of Veterans Affairs

VA has a very active and diverse portfolio of arthritis research, ranging from laboratory studies of potential new medications for rheumatoid arthritis to studies on complementary and rehabilitative therapies. During Arthritis Awareness Month, take some time to read some highlights of VA arthritis research here.

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INDICATION AND IMPORTANT SAFETY INFORMATION

Indication

ZILRETTA® (triamcinolone acetonide extended-release injectable suspension) is indicated as an intra-articular injection for the management of osteoarthritis pain of the knee.

Limitation of Use: The efficacy and safety of repeat administration of ZILRETTA have not been demonstrated.

Contraindication

ZILRETTA is contraindicated in patients who are hypersensitive to triamcinolone acetonide, corticosteroids, or any components of the product.

Warnings and Precautions

- **Intra-articular Use Only:** ZILRETTA has not been evaluated and should not be administered by epidural, intrathecal, intravenous, intraocular, intramuscular, intradermal, or subcutaneous routes. Serious events have been reported with epidural and intrathecal administration of corticosteroids and none are approved for this use. ZILRETTA should not be considered safe for epidural or intrathecal administration.
- **Hypersensitivity Reactions:** Rare instances of anaphylaxis, including serious cases, have occurred in patients with hypersensitivity to corticosteroids.
- **Joint Infection and Damage:** A marked increase in pain accompanied by local swelling, restriction of joint motion, fever, and malaise are suggestive of septic arthritis. Examine joint fluid to exclude a septic process. If diagnosis is confirmed, institute appropriate antimicrobial therapy. Avoid injecting corticosteroids into a previously infected or unstable joint. Intra-articular administration may result in damage to joint tissues.
- **Increased Risk of Infections:** Infection with any pathogen in any location of the body may be associated with corticosteroid use. Corticosteroids may increase the susceptibility to new infection and decrease resistance and the ability to localize infection.
- **Alterations in Endocrine Function:** Corticosteroids can produce reversible hypothalamic-pituitary-adrenal axis suppression, with potential for adrenal insufficiency after withdrawal of treatment, which may persist for months. In situations of stress during that period, institute corticosteroid replacement therapy.
- **Cardiovascular and Renal Effects:** Corticosteroids can cause blood pressure elevation, salt and water retention, and increased potassium excretion. Monitor patients with congestive heart failure, hypertension, and renal insufficiency for edema, weight gain, and electrolyte imbalance. Dietary salt restriction and potassium supplementation may be needed.
- **Increased Intraocular Pressure:** Corticosteroid use may be associated with increased intraocular pressure. Monitor patients with elevated intraocular pressure for potential treatment adjustment.
- **Gastrointestinal Perforation:** Corticosteroid administration may increase risk of gastrointestinal perforation in patients with certain GI disorders and fresh intestinal anastomoses. Avoid corticosteroids in these patients.
- **Alterations in Bone Density:** Corticosteroids decrease bone formation and increase bone resorption. Special consideration should be given to patients with or at increased risk of osteoporosis prior to treatment.
- **Behavior and Mood Disturbances:** Corticosteroids may cause adverse psychiatric reactions. Prior to treatment, special consideration should be given to patients with previous or current emotional instability or psychiatric illness. Advise patients to immediately report any behavior or mood disturbances.

Adverse Reactions

The most commonly reported adverse reactions (incidence ≥1%) in clinical studies included sinusitis, cough, and contusions.

Please see Brief Summary of full Prescribing Information on the following page.

July 2020. Z-01227

ZILRETTA® (triamcinolone acetonide extended-release injectable suspension) for intra-articular use

BRIEF SUMMARY OF PRESCRIBING INFORMATION: See package insert for full Prescribing Information.

1. INDICATIONS AND USAGE

ZILRETTA is indicated as an intra-articular (IA) injection for the management of osteoarthritis (OA) pain of the knee.

Limitation of Use: The efficacy and safety of repeat administration of ZILRETTA have not been demonstrated.

4. CONTRAINDICATION

ZILRETTA is contraindicated in patients who are hypersensitive to triamcinolone acetonide (TA), corticosteroids (CSs), or any components of the product.

5. WARNINGS AND PRECAUTIONS

5.1 Warnings and Precautions Specific for ZILRETTA ZILRETTA has not been evaluated and should not be administered by the following routes: epidural, intrathecal, intravenous, intraocular, intramuscular, intradermal, or subcutaneous.

5.2 Serious Neurologic Adverse Reactions With Epidural and Intrathecal Administration Serious neurologic events, some resulting in death, have been reported with epidural injection of CSs. Specific events reported include, but are not limited to, spinal cord infarction, paraplegia, quadriplegia, cortical blindness, and stroke. These serious neurologic events have been reported with and without use of fluoroscopy. Reports of serious medical events have been associated with the intrathecal route of CS administration. The safety and effectiveness of epidural and intrathecal administration of CSs have not been established, and CSs are not approved for this use. In particular, the formulation of ZILRETTA should not be considered safe to use for epidural or intrathecal administration.

5.3 Hypersensitivity Reactions Rare instances of anaphylaxis have occurred in patients with hypersensitivity to CSs. Cases of serious anaphylaxis, including death, have been reported in individuals receiving TA injection, regardless of the route of administration. Institute appropriate care if an anaphylactic reaction occurs.

5.4 Joint Infection and Damage IA injection of a CS may be complicated by joint infection. A marked increase in pain accompanied by local swelling, further restriction of joint motion, fever, and malaise are suggestive of septic arthritis. If this complication occurs and a diagnosis of septic arthritis is confirmed, institute appropriate antimicrobial therapy. Avoid injection of a CS into an infected site. Local injection of a CS into a previously infected joint is not usually recommended. Examine any joint fluid present to exclude a septic process. CS injection into unstable joints is generally not recommended. IA injection may result in damage to joint tissues.

5.5 Increased Risk of Infections Intra-articularly injected CSs are systemically absorbed. Patients who are on CSs are more susceptible to infections than healthy individuals. There may be decreased resistance and inability to localize infection when CSs are used. Infection with any pathogen (viral, bacterial, fungal, protozoan, or helminthic) in any location of the body may be associated with the use of CSs alone or in combination with other immunosuppressive agents. These infections may be mild to severe. With increasing doses of CSs, the rate of occurrence of infectious complications increases. CSs may also mask some signs of current infection. Advise patients to inform their health care provider (HCP) if they develop fever or other signs or symptoms of infection. Advise patients who have not been vaccinated to avoid exposure to chicken pox or measles. Instruct patients to contact their HCP immediately if they are exposed.

5.6 Alterations in Endocrine Function CSs can produce reversible hypothalamic-pituitary-adrenal axis suppression, with potential for adrenal insufficiency after withdrawal of treatment, which may persist for months. In situations of stress during that period (as in trauma, surgery, or illness), institute CS replacement therapy. Metabolic clearance of CSs is decreased in hypothyroid patients and increased in hyperthyroid patients.

5.7 Cardiovascular Effects CSs can cause elevations of blood pressure, salt and water retention, and increased excretion of potassium. These effects are less likely to occur with synthetic derivatives. Monitor patients with congestive heart failure (CHF) or hypertension for signs of edema, weight gain, and imbalance in serum electrolytes. Dietary salt restriction and potassium supplementation may be necessary.

5.8 Renal Effects CSs can cause salt and water retention, and increased excretion of potassium. These effects are less likely to occur with synthetic derivatives. All CSs increase calcium excretion. Monitor patients with renal insufficiency for signs of edema, weight gain, and imbalance in serum electrolytes. Dietary salt restriction and potassium supplementation may be necessary.

5.9 Increased Intraocular Pressure CS use may be associated with development or exacerbation of increased intraocular pressure. Monitor patients with elevated intraocular pressure for potential treatment adjustment.

5.10 Gastrointestinal (GI) Perforation CS administration is associated with increased risk of GI perforation in patients with certain GI disorders such as active or latent peptic ulcers, diverticulosis, diverticulitis, ulcerative colitis, and in patients with fresh intestinal anastomoses. Avoid CSs in these patients because signs of peritoneal irritation following GI perforation may be minimal or absent.

5.11 Alterations in Bone Density CSs decrease bone formation and increase bone resorption through their effect on calcium regulation and inhibition of osteoblast function. Special consideration should be given to patients with or at increased risk of osteoporosis (eg, postmenopausal women) before initiating CS therapy.

5.12 Behavioral and Mood Disturbances CS use may be associated with new or aggravated adverse psychiatric reactions ranging from euphoria, insomnia, mood swings, and personality changes to severe depression and frank psychotic manifestations. Special consideration should be given to patients with previous or current emotional instability or psychiatric illness before initiating CS therapy. Advise patients and/or caregivers to immediately report any new or worsening behavior or mood disturbances to their HCP.

6. ADVERSE REACTIONS

6.1 Clinical Trials Experience Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in clinical trials of a drug cannot be directly compared to rates in clinical studies of another drug and may not reflect rates observed in practice. The data below reflect exposure to a single 32mg IA injection of ZILRETTA in clinical studies in patients with moderate to severe pain due to knee OA. Clinical studies included randomized, double-blind, parallel-group, placebo- and/or active-controlled, and pharmacokinetic/pharmacodynamic studies with follow-up ranging from 6–24 weeks. 424 patients received ZILRETTA; 262 received placebo. The most commonly reported treatment-emergent adverse reactions (incidence ≥1% with ZILRETTA) in the ZILRETTA vs placebo arms were sinusitis, cough, and contusions (2% vs 1% each) and in the injected knee were joint swelling (3% vs 2%) and contusions (2% vs 1%). Overall, the incidence and nature of adverse reactions were similar to those observed with placebo.

The safety of repeat administration of ZILRETTA was evaluated in a multicenter, open-label, single-arm study in patients with OA knee pain. 179 patients received a repeat injection on or after Week 12 (median 16.6 weeks) and were followed for 52 weeks from initial injection. As assessed by adverse event rates for the periods of baseline to second dose and second dose to the comparable period after the second dose, there were higher rates of reported mild to moderate arthralgia after the second dose (16%) than after the first dose (6%). Data from this study are insufficient to fully characterize the safety of repeat administration of ZILRETTA.

6.2 Post-marketing Experience The following adverse reactions (alphabetical by body system) have been identified during post-approval use of ZILRETTA. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. Endocrine: Increased blood glucose (in diabetic patients). General and administration site conditions: Pain, including injection-site pain or discomfort, and leg pain. Immune system: Hypersensitivity reactions including pruritis, rash, angioedema, anaphylaxis. Infections and Infestations: Septic arthritis. Musculoskeletal: Arthralgia, joint swelling or effusion, muscle spasms. Nervous system: Headache. Reproductive system: Postmenopausal vaginal bleeding (similar to a menstrual period). Skin and Subcutaneous Tissue: Pruritis.

6.3 Corticosteroid Adverse Reactions The following adverse reactions (alphabetical by body system) are from voluntary reports or clinical studies of CSs. Because some of these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. Anaphylactic reactions: Anaphylaxis including death, angioedema. Cardiovascular: Bradycardia, cardiac arrest, cardiac arrhythmias, cardiac enlargement, circulatory collapse, CHF, hypertension, fat embolism, hypertrophic cardiomyopathy in premature infants, myocardial rupture following recent myocardial infarction, pulmonary edema, syncope, tachycardia, thromboembolism, thrombophlebitis, vasculitis. Dermatologic: Acne, allergic dermatitis, cutaneous and subcutaneous atrophy, dry scaly skin, ecchymoses and petechiae, edema, erythema, hyperpigmentation, hypopigmentation, impaired wound healing, increased sweating, lupus erythematosus-like lesions, purpura, rash, sterile abscess, striae, suppressed reactions to skin tests, thin fragile skin, thinning scalp hair, urticaria. Endocrine: Decreased carbohydrate and glucose tolerance, development of Cushingoid state, glycosuria, hirsutism, hypertrichosis, increased requirements for insulin or oral hypoglycemic agents in diabetes, manifestations of latent diabetes mellitus, menstrual irregularities, secondary adrenocortical and pituitary unresponsiveness (particularly in times of stress as in trauma, surgery, or

continued on next page

illness), suppression of growth in pediatric patients. Fluid and electrolyte disturbances: Congestive heart failure (CHF) in susceptible patients, fluid retention, sodium retention. Gastrointestinal (GI): Abdominal distention, bowel/bladder dysfunction (after intrathecal administration), elevation in serum liver enzyme levels (usually reversible upon discontinuation), hepatomegaly, increased appetite, nausea, pancreatitis, peptic ulcer with possible perforation and hemorrhage, perforation of the small and large intestine (particularly in patients with inflammatory bowel disease), ulcerative esophagitis. Metabolic: Negative nitrogen balance due to protein catabolism. Musculoskeletal: Aseptic necrosis of femoral and humeral heads, calcinosis (following intra-articular [IA] or intralesional use), Charcot-like arthropathy, loss of muscle mass, muscle weakness, osteoporosis, pathologic fracture of long bones, post-injection flare (following IA use), steroid myopathy, tendon rupture, vertebral compression fractures. Neurologic/Psychiatric: Convulsions, depression, emotional instability, euphoria, headache, increased intracranial pressure with papilledema (pseudotumor cerebri) usually following discontinuation of treatment, insomnia, mood swings, neuritis, neuropathy, paresthesia, personality changes, psychiatric disorders, vertigo. After intrathecal administration—arachnoiditis, meningitis, paraparesis/paraplegia, sensory disturbances. After epidural administration—spinal cord infarction, paraplegia, quadriplegia, cortical blindness, stroke (including brainstem). Ophthalmic: Exophthalmos, glaucoma, increased intraocular pressure, posterior subcapsular cataracts, rare instances of blindness associated with periocular injections. Other: Abnormal fat deposits, decreased resistance to infection, hiccups, increased or decreased motility and number of spermatozoa, malaise, moon face, weight gain.

7. DRUG INTERACTIONS

No drug–drug interaction studies have been conducted with ZILRETTA® (triamcinolone acetonide extended-release injectable suspension). Drug interactions associated with systemic corticosteroids (CSs) include the following. Aminoglutethimide: Aminoglutethimide may lead to a loss of CS-induced adrenal suppression. Amphotericin B injection and potassium-depleting agents: When CSs are administered concomitantly with potassium-depleting agents (ie, amphotericin B, diuretics), observe patients closely for development of hypokalemia. There have been cases reported in which concomitant use of amphotericin B and hydrocortisone was followed by cardiac enlargement and CHF. Antibiotics: Macrolide antibiotics have been reported to cause a significant decrease in CS clearance. Anticholinesterases: Concomitant use of anticholinesterase agents and CSs may produce severe weakness in patients with myasthenia gravis. If possible, withdraw anticholinesterase agents at least 24 hours before initiating CS therapy. Anticoagulants, oral: Co-administration of CSs and warfarin usually results in inhibition of response to warfarin, though there have been some conflicting reports. Therefore, monitor coagulation indices frequently to maintain desired anticoagulant effect. Antidiabetics: Because CSs may increase blood glucose concentrations, dosage adjustments of antidiabetic agents may be required. Antitubercular drugs: Serum concentrations of isoniazid may be decreased. CYP3A4 inducers (eg, barbiturates, phenytoin, carbamazepine, and rifampin): Drugs that induce hepatic microsomal drug-metabolizing enzyme activity may enhance metabolism of CSs and require that the CS dosage be increased. CYP3A4 inhibitors (eg, ketoconazole): Ketoconazole, a strong CYP3A4 inhibitor, has been reported to decrease the metabolism of certain CSs by up to 60%, leading to an increased risk of CS side effects. Cholestyramine: Cholestyramine may increase the clearance of CSs. Cyclosporine: Increased activity of cyclosporine and CSs may occur when used concurrently. Convulsions have been reported with this concurrent use. Digitalis glycosides: Patients on digitalis glycosides may be at increased risk of arrhythmias due to hypokalemia. Estrogens, including oral contraceptives: Estrogens may decrease the hepatic metabolism of certain CSs, thereby increasing their effect. Nonsteroidal anti-inflammatory drugs (NSAIDs): Concomitant use of aspirin (or other NSAIDs) and CSs increases the risk of GI side effects. Aspirin should be used cautiously in conjunction with CSs in hypoprothrombinemia. Clearance of salicylates may be increased with concurrent use of CSs. Skin tests: CSs may suppress reactions to allergy-related skin tests. Vaccines: Patients on prolonged CS therapy may exhibit a diminished response to toxoids and live or inactivated vaccines due to inhibition of antibody response. CSs may also potentiate the replication of some organisms contained in live attenuated vaccines. If possible, defer routine administration of vaccines or toxoids until CS therapy is discontinued.

8. USE IN SPECIFIC POPULATIONS

8.1 Pregnancy Risk Summary: There are no data regarding use of ZILRETTA in pregnant women to inform a drug-associated risk of adverse developmental outcomes. Published studies on the association between CSs and fetal outcomes have reported inconsistent findings and have important methodological limitations. The majority of published literature with CS exposure during pregnancy includes oral, topical, and inhaled dosage formulations; therefore, the applicability of these findings to a single IA injection of triamcinolone acetonide (TA) is limited. In animal reproductive studies from the published literature, pregnant mice, rats, rabbits, or primates administered TA during the period of organogenesis at doses that produced exposures less than the maximum recommended human dose (MRHD) caused resorptions, decreased fetal body weight, craniofacial, and/or other abnormalities such as omphalocele. The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the US general population, the estimated risk of major birth defects and miscarriage in clinically recognized pregnancies is 2–4% and 15–20%, respectively.

8.2 Lactation Risk Summary: There are no available data on presence of TA in human or animal milk, effects on the breastfed infant, or effects on milk production. However, CSs have been detected in human milk and may suppress milk production. It is not known whether IA administration of ZILRETTA could result in sufficient systemic absorption to produce detectable quantities in human milk. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for ZILRETTA and any potential adverse effects on the breastfed infant from ZILRETTA.

8.3 Females and Males of Reproductive Potential CSs may result in menstrual pattern irregularities such as deviations in timing and duration of menses and an increased or decreased loss of blood.

8.4 Pediatric Use The safety and effectiveness of ZILRETTA in pediatric patients have not been established. The adverse effects of CSs in pediatric patients are similar to those in adults. Carefully observe pediatric patients, including weight, height, linear growth, blood pressure, intraocular pressure, and clinical evaluation for the presence of infection, psychosocial disturbances, thromboembolism, peptic ulcers, cataracts, and osteoporosis. Weigh potential growth effects of treatment against clinical benefits obtained and availability of treatment alternatives.

8.5 Geriatric Use Of the total number of patients administered 32mg ZILRETTA in clinical studies (N=424), 143 patients were ≥65 years old. No overall differences in safety or effectiveness were observed between elderly and younger subjects, and other reported clinical experience with TA has not identified differences in responses between elderly and younger patients. However, greater sensitivity of some older individuals cannot be ruled out.

13. NONCLINICAL TOXICOLOGY

13.2 Animal Toxicology and/or Pharmacology Single and repeat administrations (1 injection every 3 months for a total of 3 injections) of ZILRETTA in non-arthritic knee joints of healthy dogs have been studied at ~1.9xMRHD of 32mg (based on estimated drug concentrations within the knee joints). ZILRETTA microspheres were degraded by approximately 4- and 6-months post dosing in single and repeat dose studies, respectively. Single administration resulted in slightly increased incidence, severity (minimal to slight), and/or duration of microscopic changes (infiltration of macrophages, lymphocytes, plasma cells, and fibrosis) and decreased Safranin O staining (decreased proteoglycan content in knee cartilage) vs administration of an equivalent dose of immediate-release (IR) TA. These responses were mostly reversed after 6 to 9 months post injection. Repeat administration resulted in an increase in incidence, severity (minimal to slight), and duration of microscopic changes (infiltration of macrophages, lymphocytes, plasma cells, neutrophils; fibrosis; neovascularization; granulation tissue; and debris) and decreased Safranin O staining (decreased proteoglycan content in knee cartilage) vs the equivalent dose of IR TA. These local responses were still reversing at 6 months post the last injection. No effect on the animals according to observations related to gait/walking, pain/discomfort in injected knee, local swelling, local redness, or local tenderness were noted. The clinical relevance of these findings in the arthritic knee is unknown.

The Brief Summary is based on the ZILRETTA Prescribing Information
Part Number: 60-009-04, Version 4, 01/2020

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v4 January 2020. Z-00029v2

Veterans
UROLOGY

New Study Reports Similar Outcomes for Black and White Veterans with Prostate Cancer

By Mark Ledesma, Public Affairs Specialist for VHA Office of Communications

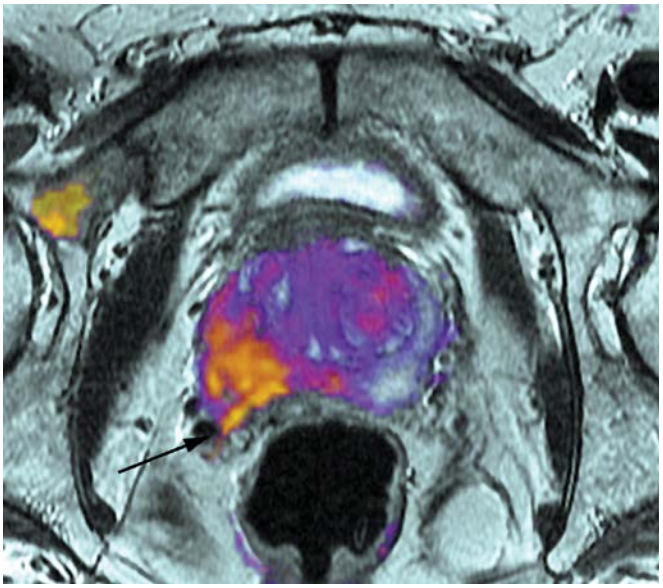
A new study funded by the National Institutes of Health and the Department of Defense found similar survival rates among black and white patients with prostate cancer receiving care at VA.

The researchers, from the VA San Diego Healthcare System and the University of California at San Diego, say the results of the study suggests that having access to high-quality medical care is a major factor in racial equity among men diagnosed with prostate cancer.

Photo courtesy of U.S. Department of Veterans Affairs

The research found black Veterans in VA care had a small but statistically significant decrease in the rate of death from prostate cancer compared with white VA patients. In contrast, African American men in the general population are more than twice as likely as white men to die from prostate cancer, although the reasons are complex. Past studies have found, however, that equal access to care can help reduce the survival gap. For example, fewer racial disparities are seen among cancer patients enrolled in clinical trials or those receiving care through VA, military health, Medicare or Medicaid.

"One out of every nine men will get prostate cancer in their lifetime."



RSI-MRI image shows high grade cancer extending from prostate (purple) into the right seminal vesicle (orange) and a bony metastasis in the right hip (upper left, orange). *Photo courtesy of David Karow, University of California, San Diego*

Additionally, in the new study, black Veterans in VA care were no more likely to experience delays in diagnosis and care, or to present with more advanced disease.

The study included more than 60,000 men who received VA care for prostate cancer between 2000 and 2015, of which about a third were African American.

According to the study, the results add to a growing body of literature supporting the importance of access to high-quality medical care in reducing or eliminating racial disparities.

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Veterans
EPILOGUE

Irwin Stovroff: Champion for POWs

By Essence McPherson

When the United States entered World War II, Irwin Stovroff wanted to serve. He enlisted in the Army Air Corps in 1942 and went to basic training at Kelly Field in San Antonio, Texas. After being assigned to the 8th Air Force as part of the 506th Squadron, Stovroff deployed to England.

In England, Stovroff joined the 44th Bomb Group, which flew bombing missions on strategic targets in France, Italy, the Netherlands and Germany. Stovroff recalled that the Army Air Corpsmen were treated well due to the dangerous nature of their missions.

"We were very fortunate," Stovroff recalled in an interview for the Library of Congress' Veterans History Project. "That was the nicest part about being in the Air Corps. If you flew a mission… you were at least able to relax after your mission… until maybe two, three days later when you'd go out again."

But during Stovroff's final mission in France, his plane was hit by flak. It damaged the two engines and forced him to bail out. Shortly afterward, he and his crew were captured by the German Army. They were taken to Wetzlar, Germany, and interrogated about their squadron's movements.

Under interrogation, Stovroff successfully avoided naming his Jewish heritage. Later, his interrogator named people that Stovroff knew in New York. In an interview with his local NPR station, Stovroff replied: "I said, 'I don't understand.'"

The interrogator followed up: "'Well, you see, you lived on Claremont Avenue in Buffalo, New York. My parents lived on Ashland Avenue… and that was around the corner from you. And you were my parents' newspaper boy.'" Stovroff believed that the interrogator protected him by not recording his Jewish heritage on the prison record.

Irwin Stovroff flew bombing missions in Europe during WW2. During his final mission, he was shot down in France and became a prisoner of war. *Photo courtesy of the Department of Veterans Affairs*

Later, Stovroff was taken by boxcar to the POW camp Stalag Luft I in Barth, Germany, where the Jewish soldiers were separated from the rest of the POWs. The Soviet Army liberated them in late April 1945, where he was eventually flown to France and returned to the U.S.

"Freedom is not free. A lot of us paid a big price for it. A lot of guys paid a bigger price, they died… I'm a lucky one," he said of his experience as a POW.

In retirement

After being honorably discharged from the Army Air Corps, Stovroff returned to Buffalo. He attended the University of Illinois, earning a bachelor's degree, then worked for a family retail furniture business in Youngstown, Ohio. When he retired to Florida in 1998, Stovroff volunteered at the VA Medical Center in West Palm Beach, working with POWs like himself as well as blind Veterans entering rehabilitation.

In 2007, Stovroff started a nonprofit called Vets Helping Heroes. "Some of these Vets come back in such bad shape — without limbs or [with] loss of vision — and they just feel like giving up," Stovroff told Today in 2016. "They want to be left alone and not have anything to do with their children or spouses. We then provide them with a service dog and it changes everything."

In 2000, Stovroff was awarded the Distinguished Flying Cross, which was presented by the late Senator John McCain. He was also awarded the President's Call to Service Award in 2002 by the President's Council on Service and Civic Participation. In 2008, he was awarded the French Legion of Honor by the French government.

Stovroff died in 2018. He was 95.

We honor his service.

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[1] Clinical study abstracts presented at scientific meetings and peer-reviewed journal articles can be found on our website at http://www.masimo.com.

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