



Research Today



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Dr. Niemeyer Honored with 2026 AMSUS Lifetime Achievement Award for Transformative Impact on Federal Healthcare

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



The Society of Federal Health Professionals has announced that Dr. Debra Niemeyer, Chief Scientist and Alternate Institutional Official for Human Subjects Research, 59th Medical Wing, San Antonio Military Health System, Joint Base San Antonio, will receive the 2026 AMSUS Lifetime Achievement Award. This honor recognizes a career of exceptional and enduring contributions to federal healthcare.

The award is one of the most distinguished honors in federal medicine. It is reserved for leaders whose sustained dedication has fundamentally advanced military medicine, public health, and health system leadership. This recognition spans across the Department of War, the Department of Veterans Affairs, and the U.S. Public Health Service, making it a significant interagency honor.

The award is not for a single achievement but for a lifetime of service. It recognizes individuals who have demonstrated a career-long commitment to improving the nation's health. Unlike annual awards that recognize a single accomplishment, the Lifetime Achievement Award honors the cumulative impact of professional legacy.

The recipients are leaders who have made significant progress in their respective fields. It celebrates senior clinicians, researchers, and executives whose leadership has shaped national policy, strengthened military readiness, improved patient outcomes, and driven innovation. Their work has a lasting impact on the health and well-being of service members, veterans, and the nation. This honor is a testament to a career spent dedicated in service to federal healthcare.

The selection process considers the full breadth and duration of an individual's federal service. Key criteria include measurable improvements in healthcare delivery, mentorship of future leaders, and strategic influence across federal health organizations. Receiving the award signifies peer acknowledgment at the highest interagency level.

After her commissioning through the Air Force Reserve Officer Training Corps, Dr. Niemeyer embarked on a distinguished career in the U.S. Air Force. She directed laboratory operations around the world, led biotechnology assessments, and conducted technological demonstrations in Southwest Asia and the Pacific. Dr. Niemeyer was a first responder and a consultant for reclamation and special events security post-2001 anthrax attacks and served in various higher headquarters staff positions. Her final active-duty assignment was as Deputy Assistant Surgeon General and Senior Scientist for the Modernization Directorate. In this capacity, she also served as Commander for the Air Force Medical Support Agency, Office of the Air Force Surgeon General.

As Chief Scientist for the Air Force's premier medical wing, Dr. Niemeyer drives the modernization of military medicine to generate and sustain warfighter readiness. She leads a multidisciplinary team at numerous sites across San Antonio, and directs a vast portfolio that encompasses joint medical, dental and nursing research and supports operational training for nearly 2,000 military medics. By orchestrating a global network of over 125 collaborators, Dr. Niemeyer fosters innovation and develops future medical leaders, enabling the Defense Health Agency's mission of warfighter readiness and superior healthcare delivery.

The award was presented March 3rd during the AMSUS 2026 Annual Meeting. This premier event gathers federal healthcare professionals, military medical leaders, scientists, and policymakers. This award stands as a capstone recognition of lifelong service, leadership, and innovation dedicated to strengthening healthcare for the nation.

DISCLAIMER: The views expressed in this Research Newsletter are those of the author and do not necessarily reflect the official policy or position of the Defense Health Agency, Department of Defense, nor the U.S. Government.

Maj William R. Hoffman, MD Recognized with Raymond F. Longacre Award for Excellence in Aerospace Behavioral Health

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



The Aerospace Medical Association (AsMA) has announced that Maj Hoffman, Medical Director, Joint Integrated Clinical Medicine Research, Office of the Chief Scientist, will be honored with the Raymond F. Longacre Award during the upcoming Honors Night ceremony at the annual Aerospace Medical Association & Undersea and Hyperbaric Medical Society Annual Scientific Meeting.

The Raymond F. Longacre Award recognizes exceptional contributions to the psychological and psychiatric aspects of aerospace medicine, including advancements in human performance, behavioral health, and operational readiness in aviation and space environments. Named in honor of Major Raymond F. Longacre, a pioneer in aviation psychology, the award represents one of the field's most respected distinctions in aerospace behavioral science.

Maj Hoffman's selection reflects a sustained record of excellence and meaningful impact in advancing the understanding of human factors and mental health in high-performance operational settings. His work has contributed to improving the safety, resilience, and effectiveness of personnel operating in complex aerospace environments.

The award will be formally presented during AsMA's Honors Night, a signature event recognizing leaders and innovators from across the global aerospace medicine and human performance community.

The 59th Medical Wing Chief Scientist's Office, Science and Technology (59 MDW/ST) extends its sincere congratulations to Maj Hoffman on this well-deserved recognition. His achievements exemplify the highest standards of research, leadership, and service in aerospace medicine.

The Health Cell's State of the Industry: Local Science in Plain Language

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



The Health Cell's State of the Industry event brought together San Antonio's medical, research, and technology communities for a focused evening on science, storytelling, and collaboration. Designed to make complex topics understandable, the program highlighted ongoing work in human health, military medicine, and biotechnology that affects both professionals and the public.

Attendees heard directly from local researchers, clinicians, and inventors whose work contributes to the region's growing reputation as a center for innovation. Topics included human metabolism and how the body converts fat to energy, battlefield medical care, infectious disease research, breast cancer treatment and drug development, tissue regeneration, and the study of how space travel may influence human health. Each presentation offered clear insights into projects that are shaping the future of medicine in San Antonio and beyond.

Dr. Lauren Cornell from the 59th Medical Wing Chief Scientist's Office, Science and Technology (59 MDW/ST) attended the event, underscoring the ongoing collaboration between military and civilian research communities in San Antonio.

Her presence represented the 59MDW's commitment to advancing research that directly supports both warfighter readiness and public health outcomes. Through her work, Dr. Cornell bridges the gap between operational medicine and clinical innovation, translating lessons learned from military environments into applications that benefit civilian healthcare systems.

Her participation also reflected the growing emphasis on defense medicine as a driver of broader scientific progress. Research conducted under the 59MDW ST Directorate often focuses on rapid response capabilities, trauma care, and medical technologies that improve survival and recovery in high-stress or resource-limited environments. These same innovations often transition into civilian use, enhancing emergency medicine protocols, diagnostic tools, and patient monitoring systems in hospitals and clinics nationwide.

At the event, Dr. Cornell engaged with researchers and industry partners to discuss emerging opportunities for joint projects, particularly those involving the development of biomedical devices and data-driven clinical solutions. Her involvement highlighted the essential role of interdisciplinary collaboration in solving complex health challenges and demonstrated how San Antonio's military medical infrastructure contributes to the city's standing as a national center for biomedical research and innovation.

Founded in 2013, The Health Cell is an all-volunteer nonprofit organization that promotes communication and collaboration within San Antonio's healthcare and bioscience sectors. The group receives no public funding and charges no membership fees, relying instead on community sponsors who support its commitment to open scientific dialogue. For those working in or interested in healthcare, State of the Industry provides a clear view into current developments shaping research and clinical practice. The event continues to solidify San Antonio's position as a leading hub for applied science, medical innovation, and professional connections.

Becoming a Nurse Scientist: Journey of Determination and Purpose

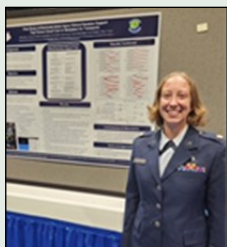
Author: Maj Nina C. Hoskins



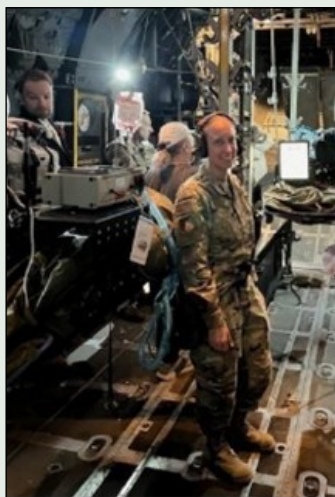
My path to becoming a Nurse Scientist emerged through my determination and guidance from mentors while I worked to enhance military healthcare delivery for warfighters and their beneficiaries. The professional journey that led me to become a Nurse Scientist emerged unexpectedly because I had no knowledge of this career path when I started my nursing career yet it has proven to be my most fulfilling experience.

I began my nursing career by working as an Operating Room (OR) Registered Nurse in the civilian healthcare system. The Air Force selected me for direct commissioning as a qualified Operating Room nurse nine years ago. My time at Keesler AFB and Brooke Army Medical Center and Lackland AFB allowed me to work on process improvement and patient safety projects and quality of care enhancement initiatives. Research work began to interest me during my early career although I did not recognize research as a potential career path at that time.

I maintained my full-time OR nursing duties while pursuing my educational goals during all my military transfers and assignments. I earned my master's degree with patient safety and quality as my focus before starting my Ph.D. studies in nursing research and nursing education. The Air Force Nurse Scientist career field remained unknown to me until my mentor introduced me to this military nursing specialty.



Three Air Force Nurse Scientists provided me with their valuable experiences through the mentorship of my mentor. Lt Col Tonya White provided me with essential guidance throughout my career. I spent time with her to witness her daily work as a Nurse Scientist and understand her military research contributions. The Tri-Service Nursing Research Program mentors provided their support by editing my dissertation to fulfill the requirements for my defense.



I submitted my application through the AY2024 HPERB Program Announcement before creating my letter of intent and collecting required documents while my university established permission for Air Force Nurse Scientists to attend my defense. The news arrived after a prolonged period of time to inform me that my degree received official recognition which would lead to my assignment as a Nurse Scientist at Lackland AFB. The eight-month journey to my new position at Lackland AFB brought me to a location only 20 miles away from my previous workplace which started my most rewarding professional period.

My current research activities focus on en route care and cognitive load and clinical decision-support tools and autonomous systems. I have worked with military and academic and industry teams to conduct research that directly supports readiness and future combat operations. The path to becoming a Nurse Scientist brought various obstacles yet this career choice has proven to be my most rewarding and significant professional decision.

59MDW/ST Welcomes Dr. Jeremy Nelson, VelocityTX Chief Innovation Officer, to Strengthen Strategic Innovation Partnership

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



The 59th Medical Wing Chief Scientist's Office, Science and Technology (59 MDW/ST) was honored to host Dr. Jeremy Nelson, PhD, and VelocityTx team on their visit to Joint Base San Antonio Lackland. Dr. Nelson was recently appointed as the new Chief Innovation Officer for VelocityTx. His visit marks an important milestone in our continued collaboration.

Dr. Nelson spent time engaging with leadership and research teams to gain deeper insight into the 59MDW's mission-focused innovation portfolio. Discussions highlighted shared priorities in accelerating medical solutions, strengthening public-private partnerships, and advancing technologies that directly enhance operational medicine and combat casualty care.

The partnership between VelocityTX and the Defense Health Agency (DHA), solidified by a Cooperative Research and Development Agreement (CRADA), is a significant alliance aimed at bolstering military medical innovation and enhancing the readiness of the Joint Force. This collaboration is a testament to a shared commitment to translating research into tangible capabilities for service members.

A Cooperative Research and Development Agreement (CRADA) is a legal framework that allows federal laboratories to collaborate with non-federal entities like VelocityTX.

Under a CRADA, the government can offer personnel, facilities, and equipment, while the non-federal partner can provide funding and resources to accelerate technology transfer and commercialization.

The "umbrella CRADA" between the DHA and VelocityTX establishes the latter as a "trusted partner," streamlining collaboration between military researchers and private-sector innovators. The partnership's primary goal is to generate and sustain warfighter readiness, a top priority for the DHA. This is achieved by creating a "pathway to rapidly translate new discoveries into solutions that strengthen warfighter readiness and improve care for military families and civilians alike."

We greatly appreciate Dr. Nelson and the VelocityTX team for taking time out of their busy schedule to visit. The 59 MDW/ST looks forward to building an even stronger and more dynamic partnership in the months ahead, advancing innovation that directly impacts military medicine and national security.

Honors and Recognition

Fellowships and Academic Achievements

Maj Kathryn Capple (STN) has been accepted to the TriService Nursing Research Program (TSNRP) Fellowship for 2026. The TSNRP is a Department of Defense program that funds research and evidence-based practice projects to improve healthcare outcomes within the military healthcare system. This prestigious fellowship offers active-duty military nurses with doctoral degrees the chance to develop leadership skills that advance military nursing research.

Dr. Lauren Cornell (STH) was coined by LCDR Ryan Rigby of the Army-Baylor Health Program after giving a talk to its members. The Army-Baylor Graduate Program in Health Administration is a top-ranked program that educates Army officers and federal health officials.

Dr. Debra Niemeyer (ST) was recognized with a coin by Professor Manabu Kinoshita from the National Defense Medical College in Japan for hosting their visit. The National Defense Medical College is Japan's six-year military academy for training future military medical officers.

Awards and Recognition

Maj Nina Hoskins (STN) was selected as the Field Grade Officer (FGO) for the Wing Staff Agency's 4th Quarter Award.

Ruben O'Neal (STT) was chosen as the Civilian Category III for the Wing Staff Agency's 4th Quarter Award.

MSgt John Tyree (ST) was personally recognized by Dr. Niemeyer with the 59th Medical Wing Staff Agency coin, a gift from Col Latimer.

Maj William Hoffman (STH) earned the title of Field Grade Officer (FGO) for the 2025 Wing Staff Agency's Annual Award.

Raquel Lopez (STC) was selected as the Civilian Category III for the 2025 Wing Staff Agency's Annual Award.

The Science & Technology (ST) team was honored with the Team Award for the 2025 Wing Staff Agency's Annual Award.

Dr. Debra Niemeyer (ST) was coined by Lt Col Latimer, the 59 MDW/CoS, for her Outstanding Service.

SSgt Theron Clay (STC) was presented with the Air and Space Commendation Medal by Dr. Carol Walters on behalf of Brig Gen Foster. This medal is awarded for meritorious achievement and service.

SrA Lixa Auciell (STC) received the Air and Space Achievement Medal from Dr. Carol Walters, presented on behalf of Brig Gen Foster. This award recognizes outstanding achievement or meritorious service on behalf of the Air Force.

Dr. Debra Niemeyer (ST) was coined by Lt Gen DeGoes at the 2026 AMSUS Annual Meeting for her Outstanding Service. This premier event brings together federal health professionals from various departments to collaborate and share innovations in healthcare.

Maj William Hoffman (STH) has been chosen as the 2026 recipient of the prestigious Raymond F. Longacre Award from the Aerospace Medical Association & Undersea and Hyperbaric Medical Society. This award recognizes outstanding accomplishment in the psychological and psychiatric aspects of aerospace medicine.

Dr. Sandra Escolás (STC) has been selected for the 2026 Military Psychology James Griffith Award for Sustained Excellence in Reviewing.

Maj Kathryn Capple (STN) was named the FGO (Field Grade Officer) for the 2026 Wing Staff Agency's 1st Quarter Awards.

A Data-Driven Advancement in Combat Medicine: Capt Colton B. Juell's Work on Renal Trauma Management

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Photo by Tech. Sgt. Tory Patterson

Capt. Colton B. Juell, MD has become a leading figure in the study of renal injuries sustained during military combat operations. He is recognized for his work analyzing outcomes within the Department of Defense Trauma Registry (DoDTR), culminating in the 2025 publication *Management of Renal Injuries from Military Combat Trauma*.

This contribution matters greatly, as renal trauma—though less common than extremity or thoracic injuries—poses complex challenges in austere environments where rapid stabilization can determine survival and long-term organ function.

Dr. Juell's early academic interests centered on anatomy, physiology, and the body's responses to severe injury. His formative experiences in emergency care and surgical training exposed him to the intricate balance between organ preservation and life-saving intervention. These early influences foreshadowed his later commitment to understanding how battlefield conditions shape patterns of injury and the medical decisions required to address them.

As he progressed through military medical training and operational assignments, Dr. Juell observed firsthand the evolving nature of combat trauma. Modern conflicts produced a wider array of blast-related and penetrating injuries, often affecting multiple organ systems simultaneously. His work alongside trauma surgeons, medics, and evacuation teams deepened his appreciation for the speed and precision required in managing renal damage—an area where evidence-based guidance was still developing. These experiences shaped his resolve to analyze large-scale data that could inform future clinical practice.

During a critical period of professional development, Dr. Juell recognized that individual case reports could not fully capture the patterns necessary to advance renal trauma care. The DoD Trauma Registry, however, contained years of systematically collected data from deployed settings. By studying this resource, he identified recurring challenges: variable injury mechanisms, inconsistent documentation, and uncertainty surrounding optimal surgical versus conservative management in combat conditions. These gaps motivated a comprehensive investigation to clarify the best approaches for preserving renal function while maintaining battlefield survivability.

His publication in *Urology* synthesized data from years of military operations, offering new insights into how renal injuries are managed under combat constraints. The study highlighted several key findings, including the frequency and types of renal trauma encountered in deployed settings, the effectiveness of various surgical and non-surgical interventions, and the factors that most strongly influenced outcomes. By comparing these patterns to existing civilian guidelines, Dr. Juell demonstrated where combat care required unique adaptations and where standard approaches remained effective.



The impact of this work extends beyond academic interest. By improving understanding of renal trauma patterns, his research supports more informed decision-making for surgeons, medics, and operational planners. Service members with severe abdominal injuries stand to benefit most, as the findings contribute to improved protocols for stabilization, evacuation, and organ-preserving techniques.

Dr. Juell's contribution continues to influence military trauma training and research priorities. His work strengthens the evidence base guiding renal injury management and provides a foundation for future innovations in the care of combat casualties. Through a blend of scientific

rigor and commitment to the well-being of warfighters, he has advanced the field in ways that will shape military medicine for years to come.

Characterization and Lyophilization of Injury-Specific Extracellular Vesicles for a Bioactive Product for

Anterior Cruciate Ligament Tear Treatment

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Photo by Robert K Lanier Keller Army Community Hospital

Traumatic orthopedic injuries, such as anterior cruciate ligament (ACL) tears, represent a significant challenge to both military and civilian populations. These injuries often require advanced regenerative treatments that are not easily accessible in field or resource-limited environments.

Addressing this critical gap, Lt Col Andrew Sheean, USAF, MC, of the 959th Medical Group, in collaboration with Dr. Tony Yuan from the Uniformed Services University of the Health Sciences and 4D Bio3, is leading a study focused on the characterization and lyophilization of injury-specific extracellular vesicles (EVs) for therapeutic use.

Extracellular vesicles are nanoscale, cell-derived particles that play a vital role in intercellular communication and tissue repair. Their bioactive properties make them a promising therapeutic option for accelerating healing following musculoskeletal injuries. However, the inherent instability and storage requirements of EV-based therapies present significant logistical challenges, especially in austere or deployed environments where cold-chain storage is impractical.

The primary objective of this research effort is to develop a lyophilized (freeze-dried) EV formulation that retains bioactivity and therapeutic efficacy after long-term storage without refrigeration. By developing a robust and cost-effective protocol for the lyophilization process, this study aims to alleviate logistical constraints and enhance the deploy ability of advanced biologic treatments for orthopedic injuries.

The successful execution of this project will result in an innovative and field-ready therapeutic platform, enhancing the ability to treat ACL tears and similar injuries in both combat and remote care settings. This research not only supports the Department of Defense's mission to improve operational readiness but also contributes to advancing regenerative medicine and precision therapeutics across military healthcare systems.

New Study Highlights Risks in En Route Insulin Administration & Calls for Enhanced Protocols

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



A new study, *Insulin Administration Safety Profile During Military En Route Critical Care Transports*, published in *Military Medicine*, is raising important questions about insulin administration practices during Critical Care Air Transport (CCAT) missions.

This collaborative effort, involving researchers from the Center for Sustainment of Trauma and Readiness Skills, University of Cincinnati, the En route Care Research Center (ECRC), 59MDW, Science & Technology, Defense Health Agency, Joint Base San Antonio, and the Department of Surgery, University of Cincinnati College of Medicine, analyzes a decade's worth of data and reveals critical insights into potential risks and areas for improvement in this challenging environment. The study, conducted by researchers at the En Route Care Research Center (ECRC) in San Antonio, retrospectively reviewed 2,998 patient records from CCAT missions between 2012 and 2022. Focus was placed on the 59 patients (2%) who received insulin during air transport.

The aeromedical evacuation setting presents unique logistical and physiological stressors from confined spaces and low-light conditions to persistent aircraft noise and resource limitations. These factors can significantly increase the risk of adverse drug events (ADEs), making medication safety a paramount concern.

The findings revealed a concerning trend: while insulin infusions were relatively infrequent, administered in only 13 cases, they were associated with a notably high rate of hypoglycemia, at 23%. This underscores the inherent difficulty in precisely managing insulin infusions in the dynamic and often unpredictable air transport environment. Furthermore, the study highlighted inadequate glucose monitoring practices, particularly during intravenous push (IVP) insulin administration. A staggering 60% of IVP administrations lacked a documented glucose check within one hour, potentially leaving patients vulnerable to undetected and untreated hypoglycemia.

These findings highlight the need for reevaluating current CCAT practices. The current model relies heavily on individual healthcare provider expertise, but this study reveals significant vulnerabilities in the consistency and accuracy of medication management.

The research team suggests that these vulnerabilities stem from the unique challenges of enroute critical care, which demand heightened awareness and standardized protocols.

Considering these findings, the study's authors recommend a shift towards prioritizing subcutaneous (SQ) insulin as the first-line treatment for hyperglycemia during ERCC missions. This recommendation is based on the increased predictability and ease of administration associated with SQ injections compared to infusions and IVP. However, the researchers emphasize that if CCAT teams opt for intravenous insulin administration, they must implement robust glucose monitoring protocols to ensure patient safety.

Advancing Concussion Assessment in Military Medicine: The Contributions of Dr. Karen H. Lambert

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Dr. Lisa O'Block, a vestibular physical therapist, demonstrates the assessment of the cervical spine, which must be done prior to completing the VOMs. Photo by Ryan Graham

Dr. Karen H. Lambert has emerged as a prominent voice in the advancement of military neuroscience and research on traumatic brain injury. She is recognized for her work examining the accuracy and limitations of concussion screening tools used across the U.S. Armed Forces. Her recent study, published in *The Journal of Head Trauma Rehabilitation*, explores the factors contributing to false-positive rates in the Vestibular/Ocular Motor Screening (VOMS) when interpreted through the Military Acute Concussion Evaluation 2 (MACE 2) cutoffs. This work holds significant importance, as precise concussion identification is crucial for ensuring timely care, maintaining operational readiness, and protecting long-term neurological health.

Dr. Lambert's early academic interests in human performance and neurobiology shaped her path toward understanding the brain's response to injury. Her foundational experiences studying visual coordination, balance, and cognitive endurance helped cultivate an informed perspective on how subtle changes in neurological function can impact overall performance. These early influences naturally guided her toward the complex challenges of diagnosing mild traumatic brain injury in environments where symptoms can be easily overlooked or misinterpreted.

As her professional career developed, Dr. Lambert worked extensively with military personnel undergoing evaluation and treatment for concussion. In these clinical settings, she gained firsthand insight into the demands placed on service members exposed to explosive, kinetic, and high-acceleration forces. She observed that screening tools often needed to strike a balance between speed, sensitivity, and accuracy—yet inconsistencies in interpretation sometimes led to unnecessary restrictions or misdirected care. These experiences reinforced her drive to examine how commonly used assessments are performed in real-world military populations.

Continues...



During her research tenure, Dr. Lambert noticed a recurring pattern: many service members screened positive on VOMS despite showing no clinical signs of concussion. This trend raised concerns about potential over-identification and the operational challenges that follow. Motivated by these observations, she conducted a systematic study to determine the causes of elevated false-positive rates and the demographic or physiological factors that might influence outcomes.

Her 2025 study provided critical clarity. By analyzing VOMS performance in conjunction with MACE 2 thresholds, she found that several non-injury factors could lead to positive screens, including individual variability in visual-vestibular responses. These findings revealed that the existing cutoff values may inadvertently inflate suspected concussion rates, prompting unnecessary evaluations while diverting resources from those who truly need care.

Dr. Lambert's work is now influencing how clinicians interpret vestibular and ocular motor assessments within the military medical field. Her research supports more accurate triage, improved clinical judgment, and more efficient use of rehabilitation resources. As her findings continue to inform future revisions of TBI screening protocols, her contribution stands as an important advancement in safeguarding the cognitive health of service members.

Dr. Lambert's contributions represent a pivotal turning point in military medicine. Driven by rigorous scientific inquiry and a profound dedication to improving diagnostic precision, she has redefined the standards of concussion assessment. Her work provides a much stronger, more reliable foundation for identifying and understanding brain injuries in the field. The impact of her research will resonate long into the future, shaping the next generation of military medical practices and technologies. This will create a lasting ripple effect, yielding significant long-term health benefits for our warfighters and equipping their clinicians with the state-of-the-art tools they need to provide unparalleled care.

Advancing Hearing Restoration for America's Warfighters: The Work of LTC Isaac Erbele

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Staff Sgt. Charles Mitchell, 34, from Carlsbad, Calif., Edson Range's post exchange manager, Service Company, Combat Logistics Regiment 17, 1st Marine Logistics Group, takes the annual audiogram test on Camp Pendleton. Photo by Cpl. Khoa Pelczar

LTC Isaac Erbele, MC, USA, an otolaryngologist at Brooke Army Medical Center (BAMC), has emerged as a central figure in advancing military auditory research. He is recognized for leading pioneering efforts to address blast-induced sensorineural hearing loss (SNHL), a permanent and currently untreatable condition that affects thousands of service members each year. His most recent study on NVG-291 marks a significant milestone in the search for regenerative treatments that can restore hearing after exposure to blasts. Erbele's early academic interests in biology and human physiology created the foundation for his specialized focus on hearing and balance disorders.

As he progressed through medical training and military service, his experiences working directly with Soldiers exposed to blasts revealed the profound operational impact of auditory injury. Even mild overpressure events consistently resulted in hearing deficits that diminished situational awareness and compromised mission effectiveness. These encounters reinforced the need for innovative therapeutic strategies that could move beyond symptom management and address the root causes of inner-ear damage.

His assignment at BAMC, located within Joint Base San Antonio–Fort Sam Houston, placed him at the center of both clinical practice and scientific inquiry. Here, Erbele witnessed the limitations of existing treatment options for SNHL. With no approved pharmacological interventions capable of repairing the auditory system once damaged, service members faced permanent hearing loss and long-term reductions in quality of life. This critical gap became the catalyst for his pursuit of solutions grounded in regenerative medicine and neuroplasticity.

Supported by the DHA Restoral program, Erbele led a study investigating NVG-291, a compound developed by NervGen Pharma designed to enhance neural repair and promote functional recovery. Using a precise rat model of blast-induced inner-ear injury, his research team administered daily subcutaneous doses of NVG-291-R and monitored hearing thresholds across a broad frequency range. The results were striking: animals treated with NVG-291 showed significant improvements in hearing after both single high-pressure blasts and repeated low-pressure exposures. By Day 30, treated subjects demonstrated full therapeutic benefit, avoiding the profound and permanent hearing loss observed in untreated controls.

The implications of these findings are far-reaching. For the first time, evidence suggests that pharmacological intervention may be able to mitigate or even prevent permanent SNHL following blast trauma. This advancement offers new hope for preserving the operational readiness of warfighters and improving long-term outcomes for those exposed to hazardous acoustic environments.

Presented at the 2025 Military Health System Research Symposium, the study now serves as the foundation for advancing NVG-291 into Phase 1b/2 clinical trials. Through his leadership and dedication, LTC Erbele continues to shape the future of auditory care in military medicine, forging a path toward treatments that could transform the management of hearing injuries for generations to come.

Challenge-Based Acquisition: Driving Innovation Through Competition

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Scott F. Walter, PhD, PE Director of Technology Transition/Transfer S9 MDW/ST Office

A transformative approach to government acquisition is rapidly gaining momentum across the research, development, and defense sectors. Known as Challenge-Based Acquisition (ChBA), this innovative strategy—discussed in more detail by Dr. Scott F. Walter in a recent LinkedIn article highlights the benefits that would be gained from using a more results-oriented procurement framework.

Dr. Walter describes ChBA as a forward-looking model that replaces traditional, prescriptive contracting with a challenge-driven process, encouraging competition, accelerating innovation, and empowering industry partners to deliver effective, real-world solutions to government needs. Instead of prescribing a detailed solution and selecting a contractor through a conventional evaluation of proposals and past performances, ChBA presents a defined operational challenge to the marketplace and invites the industry to compete in developing and demonstrating creative and innovative solutions.

This model emphasizes results over process, empowering developers to leverage their own best practices, technologies, and expertise. It is designed to stimulate innovation, shorten acquisition timelines, and reduce costs while strengthening collaboration between government, academia, and industry. By shifting from rigid, specification-based requirements to outcome-based challenges, ChBA enables the government to benefit from the speed and creativity of the commercial innovation cycle, providing viable and affordable medical products to end-users.

How It Works

1. Define the Challenge: The government clearly articulates its mission need or operational problem, emphasizing desired outcomes rather than dictating technical solutions.
2. Propose Solutions: Industry teams, research organizations, and innovators compete to design and propose creative, technically sound solutions.
3. Demonstrate Performance: Participants develop prototypes or conduct demonstrations in real-world or simulated conditions, allowing direct assessment by end users.
4. Award Contracts: Contracts or task orders are awarded to the solutions that most effectively meet performance objectives and mission requirements, as validated through testing and evaluation.

Key Advantages

- Encourages Innovation: By defining needs rather than methods, ChBA invites original, out-of-the-box thinking and leverages the full breadth of the innovation ecosystem.
- Accelerates Delivery: Early prototyping and live demonstration streamline acquisition and deployment, reducing both schedule and cost.
- Expands Competition: Opens participation to nontraditional defense contractors, small businesses, and emerging technology firms.
- Balances Risk: Transfers more technical and development risk to industry, motivating high performance and innovation efficiency.

Reflects Market Practices: Mirrors private-sector procurement models, supporting the rapid integration of commercial technologies into government operations.

When to Use ChBA

ChBA is particularly effective for urgent or time-sensitive needs, rapid prototyping initiatives, or emerging technologies where traditional contracting may delay fielding or constrain innovation. It also supports incremental capability development, allowing agencies to experiment, learn, and adapt in real time.

Dr. Walter's effort highlights Challenge-Based Acquisition as a modern, mission-focused framework that promotes agility, accelerates innovation, and delivers operational solutions more efficiently. It represents a meaningful evolution in how public and private sectors can collaborate to meet national and defense challenges.

For more information please visit: <https://www.linkedin.com/pulse/utilizing-challenge-based-acquisition-process-rapid-walter-pe-ibbvvc>

Developing a Preoperative Risk Index for Craniofacial Combat Casualties from the Department of Defense Trauma Registry (DoDTR)

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



U.S. Marines with 3D Littoral Battalion perform casualty evacuation training. Photo by Cpl. Adaris Cole

Craniofacial trauma is among the most complex and debilitating injuries sustained by service members in combat operations. Accounting for a significant portion of battlefield injuries and long-term disabilities, these cases demand rapid surgical intervention, accurate preoperative assessment, and specialized postoperative care—often in resource-limited or austere environments.

Dr. Tarjani Shukla, PhD, Principal Investigator at the 59th Medical Wing, Science and Technology Directorate (59 MDW/ST), leads this effort to improve surgical outcomes for wounded warriors through the development of a preoperative risk index specifically for craniofacial combat casualties. Her research is conducted under the Diagnostics & Therapeutics Research division as part of the Joint Integrated Clinical Medicine Research Program.



Photo by Senior Airman Matt Porter Joint Base McGuire-Dix-

Preoperative risk assessment plays a vital role in surgical decision-making, triage prioritization, resource allocation, and patient counseling. Currently, surgical teams rely on general models such as the American Society of Anesthesiologists Physical Status (ASA-PS), the Trauma and Injury Severity Score (TRISS), the Facial Fracture Severity Score (FFSS), and the Maxillofacial Injury Severity Score (MFISS). While these models are clinically useful, they are not designed to address the distinctive mechanisms and challenges of craniofacial combat trauma.

Civilian algorithms often overlook combat-specific risk factors and lack applicability to active-duty populations. Recognizing this gap, the Department of Defense previously used data from the Department of Defense Trauma Registry (DoDTR) to develop the Military Injury Severity Score (mISS) in 2016. The mISS demonstrated superior performance compared to the civilian Injury Severity Score (ISS) in predicting mortality during combat operations. However, because craniofacial trauma is less associated with mortality and more with functional and cosmetic morbidity, general surgical risk models are inadequate for this patient population.

Dr. Shukla's study aims to address this limitation through three specific objectives: Identify and extract clinical variables and outcomes associated with craniofacial trauma from the DoDTR. Develop a preoperative risk index using supervised machine learning to predict adverse outcomes following craniofacial trauma surgery. Validate and calibrate the index to ensure interpretability and optimal clinical performance.

This initiative represents a critical step toward developing a military-specific, data-driven tool that enhances surgical precision and patient outcomes. By leveraging DoDTR data and advanced analytics, Dr. Shukla's research will provide the Department of War with a validated craniofacial risk model—improving trauma care delivery and readiness across military medicine.

Understanding the Role of Investigators in Human Subjects Research

Author: Dr. Sandra M. Escolas



In human subject research, the term investigator refers to any individual directly engaged in the conduct of a study. This role is not limited to physicians or scientists; it includes anyone responsible for obtaining informed consent, collecting data, interacting with participants, or analyzing identifiable private information for research purposes.

In essence, investigators ensure that research involving living individuals is conducted ethically, responsibly, and in compliance with institutional and regulatory standards.

At the core of every study is the Principal Investigator (PI). The PI carries ultimate responsibility for the design, conduct, oversight, and reporting of the research. In clinical trials or grant-funded studies, the PI develops the protocol, secures required approvals, supervises study personnel, analyzes data, and reports findings accurately. The PI must also confirm that the study is scientifically sound, ethically defensible, and supported with sufficient resources such as funding, staffing, and space.

Working alongside the PI are Co-Investigators (Co-Is), who play significant roles in advancing the study but do not hold overall authority. Co-Is may design elements of the project, lead specific components, or dedicate specialized expertise. Their contributions are essential, but ultimate accountability rests with the PI.

Conducting research with human participants comes with important responsibilities. The PI must ensure compliance with Institutional Review Board (IRB) requirements, institutional policies, and federal regulations. This includes:

- Securing IRB approval before initiating or modifying a study.
- Guaranteeing all personnel are properly trained in protocol procedures, ethical principles, and regulatory compliance (e.g., CITI training).
- Protecting the rights, safety, and welfare of participants through proper consent and HIPAA authorization processes.
- Maintaining accurate, organized, and secure study records.
- Reporting adverse events, participant complaints, and progress updates to the IRB within required timeframes.

In FDA-regulated trials, additional standards apply, including adherence to Good Clinical Practice (GCP) guidelines. Ultimately, the PI is expected to foster a culture of ethical research, transparency, and participant protection.

By understanding these roles and responsibilities, research teams can ensure that studies are conducted with integrity, advancing knowledge while safeguarding those who make it possible, the participants.

Examining the Impact of Variable Ratio–Based Technology on Fundamental Health Behaviors in Service Members

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



U.S. Marines play video games during the E-Sport Challenge hosted by the Academy of Art University as part of San Francisco Fleet Week. Photo by Petty Officer 2nd Class Andrew Langholf

A new research initiative led by Capt. Thomas Holland, USAF, a clinical psychologist with the 59th Medical Wing, seeks to better understand how technology designed around variable ratio (VR) reinforcement, such as social media, video games, and streaming Platforms affects the health and readiness of U.S. service members.

These “VR-reinforcing Technologies” operate on unpredictable reward schedules that can powerfully influence user behavior, often promoting extended engagement. While such technologies have been studied in civilian contexts, there has been limited research examining their direct impact on military health and readiness behaviors.

This cross-sectional study investigates the relationship between the use of VR-based technology and key readiness health behaviors such as sleep, diet, exercise, and social interaction among active-duty, guard, and reserve service members. Participants will be drawn from both primary care and mental health populations across multiple military sites. Using anonymous surveys, the study aims to collect data from up to 1,200 participants representing diverse service backgrounds and care environments.

The project's primary objectives include four aims:

Prevalence and Patterns: Identify the frequency at which service members use variable ratio technologies and the patterns associated with their use.

Health Correlations: Examine how these technologies correlate with primary health outcomes, including sleep quality, diet balance, physical activity, sedentary behavior, social connection, and body mass index (BMI).

Population Differences: Compare technology use and health impacts between mental health clinic populations and general medical populations to determine whether certain groups are more vulnerable to technology-related behavior changes.

Demographic Variability: Assess demographic factors—such as age, rank, or service component—that may influence these relationships. Capt. Holland's study addresses a notable gap in Department of War (DoW) research, which has traditionally focused on using digital platforms to enhance recruitment and wellness. By contrast, this investigation examines potential risks and behavioral trade-offs associated with high engagement in variable ratio technologies.

Preliminary results will serve as foundational data for future funded research efforts. The long-term goal is to clarify how these technologies may shape service member readiness and well-being, ultimately guiding the development of evidence-based clinical guidelines and interventions. By understanding both the benefits and drawbacks of VR-reinforcing technologies, this work aims to promote healthier patterns of technology use that sustain force readiness and psychological resilience across the military community.

Recovery Barriers in In-Flight Pilot Impairment: A Bowtie Model Approach to Operational Safety

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



U.S. Air Force Capt. James Schifflett, 492nd Fighter Squadron weapon systems officer, conducts pre-flight inspections of a U.S. Air Force F-15E Strike Eagle during Exercise Ocean Sky 25

Pilot impairment—stemming from fatigue, stress, cognitive overload, or underlying mental health conditions—remains one of the least addressed yet most consequential threats to aviation safety and force readiness.

Maj William Hoffman, USAF, MC, neurologist and aeromedical researcher with the 59th Medical Wing's Office of Science and Technology (59 MDW/ST), is leading a pioneering study titled "Recovery Barriers in In-Flight Pilot Impairment: A Bowtie Model Approach to Operational Safety." The project is conducted under the Joint Integrated Clinical Medicine Research Program and is funded through a gift from the Henry M. Jackson Foundation to the Clinician Scientist Investigator Opportunity Network (CSION) Fellowship.

Current aviation medical regulations largely follow a Safety-I approach, emphasizing diagnosis-based grounding and strict risk avoidance. While this framework has historically maintained flight safety, it often discourages pilots from seeking early care due to fear of medical disqualification. Studies have shown that more than half of military pilots avoid mental health or fatigue-related care, resulting in delayed intervention and diminished operational readiness.

Maj Hoffman's study introduces a paradigm shift grounded in Safety-II principles—focusing on what enables safe recovery during adverse events rather than solely preventing them. The project applies Bowtie modeling, a systems safety framework that visualizes both causes and recovery pathways of potential failures. By studying how pilots recover from in-flight impairment, the team aims to identify operational barriers that prevent or delay recovery.

The research will employ the Critical Incident Technique (CIT) to collect data from ten seasoned airline captains, each recounting real-world instances where impairment was successfully mitigated and a mishap was averted. These narratives will be analyzed using advanced natural language processing (NLP) to classify recovery actions into a structured taxonomy of human, procedural, and technical factors. A panel of subject matter experts will then assess the operational effectiveness and relevance of each barrier.

The resulting data-driven Bowtie risk model will be designed for direct integration into both the U.S. Air Force and the Federal Aviation Administration (FAA) Safety Management Systems (SMS). This research addresses urgent needs identified by the Joint Capabilities Integration and Development System (JCIDS), the 2024 FAA Aviation Rulemaking Committee, and the Aerospace Medical Association.

By creating measurable tools to manage cognitive risk, this project advances operational safety, supports early intervention, and provides a novel framework for accelerating return-to-duty decisions while maintaining a mission-ready aircrew.

59th MDW Research Team Tours DAF Military Working Dog Program to Advance

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Dr. Brinkley, Director of the Joint Integrative Clinical Medicine (JICM) Directorate of the 59 MDW Chief Scientist's Office, along with Dr. Cornell and Dr. Shukla, JICM Lead Scientist and JICM Bioinformaticist, visited the DAF Military Working Dog (MWD) Program at Lackland, AFB, to identify areas to collaborate and address DHA requirements to improve resiliency and return to duty of MWDs. Spearheading the visit was MSgt. Garver, DAF Military Working Dog (MWD) Program Manager, at the Air Force Security Forces Center. MSgt. Garver is a key leader within the DoD MWD community, having previously served as a highly skilled handler, trainer, K9 school instructor, and key leader in developing the DAF K9 program's course curriculum. MSgt. Garver now leads the DAF MWD program, which has over 600 active MWDs, the largest in the nation.

The discussion centered on identifying relevant DHA MWD portfolio topic areas that align with the DAF MWD program's needs and potential areas of collaboration. Specifically, the discussion focused on the end-user needs for integrative data analysis, early pain detection, therapeutic development, musculoskeletal injury treatment, mitigation in extreme environments, and prediction of behavioral/psychological health risks.



Potential collaboration opportunities include working with MSgt. Garver to leverage MWD health records, performance metrics, and environmental data for predictive analytics. They also discussed a follow-up meeting to connect with the US Army MWD Veterinary Corps, refining research priorities and developing a formal collaboration framework between the three groups. The tour of the MWD Breeding Program facilities was led by Mr. Thomas Ybarra and Ms. Tracy Cann. Mr. Ybarra and Ms. Cann are both MWD Foster Consultants for the Breeding Program. They shared details about the breeding program with the JICM scientists, including selection processes and early puppy development protocols. The tour included the Breeding Program facility, featuring their training areas and housing for both small/large dogs. This introduction enabled JICM scientists to learn more about the training methodologies used by the program and understand the key environmental factors affecting MWD performance.

There are several areas of overlap between the DAF MWD Program and the MWD Breeding Program that align with the JICM directorate. This collaboration presents significant opportunities to enhance MWD operational effectiveness while advancing veterinary medicine through innovative research applications. Integrating the JICM scientist research experience with the MWD program expertise positions both organizations to address critical capability gaps and improve mission success rates. Going forward, JICM will pursue collaborative opportunities for MWD research, including access to the DAF MWD Program data repository, subject-matter experts, and end-users' needs, genetic data repository, access to a training environment, and introduction to the Army MWD Veterinary Corps.

Strengthening International Military Medical Collaboration: Visit from Japan's National Defense Medical College

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology

Delegates from the National Defense Medical College (NDMC), Japan, recently concluded a multi-site visit to U.S. military medical research and training organizations, culminating with a visit to the Office of the Chief Scientist, 59th Medical Wing (59th MDW), Joint Base San Antonio–Lackland, Texas, USA. The visit was designed to provide the delegation with a deeper understanding of how a tri-service military medical hub is organized and how research, training, and operational missions are integrated to support readiness and innovation.

Before arriving at the 59th MDW, the NDMC delegation toured the U.S. Army Institute of Surgical Research (ISR) and the Naval Medical Research Unit (NAMRU). The final stop at Joint Base San Antonio–Lackland allowed the visitors to view capabilities across the full continuum of military medical research and training. Several members of the delegation had previously visited in 2023; however, for most participants, this was their first opportunity to observe the current scale and scope of operations.

During discussions with the Office of the Chief Scientist, the delegation expressed strong interest in the capacity to conduct large-scale live tissue research while simultaneously delivering advanced, mission-relevant training. Leadership and subject matter experts shared recent research efforts from the Trauma and Clinical Care Research (TCCR) Joint Austere Medicine (JAM) Directorate, highlighting how findings are translated into operationally relevant solutions. In parallel, NDMC representatives presented their latest research, with a particular focus on resuscitative endovascular balloon occlusion of the aorta (REBOA) and advanced resuscitation strategies.

Key topics addressed during the visit included combat casualty evacuation (MEDEVAC), hemorrhagic shock management using REBOA, and the development of whole blood analogs. These discussions reflected shared operational challenges and research priorities between U.S. and Japanese military medical communities.

Overall, the visit reinforced a shared commitment to advancing military medicine through international collaboration. The exchange of research findings, operational insights, and organizational models strengthened mutual understanding and identified opportunities for future collaboration, supporting global readiness, innovation, and improved outcomes in combat casualty care.



Clinician Scientist Investigator Opportunity Network Program (CSION) New Incoming Class of 2026

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology

The Clinician Scientist Investigator Opportunity Network (CSION) program celebrates the selection and arrival of its new CSION Fellows of 2026. The incoming class of CSION Fellows includes CPT Aubrey Montebello (Dermatology), LTC Anish Patel (Gastroenterology & Hepatology), Maj Andrea Keithler (Cardiologist), MAJ Kelly Ivinoskeefe (Anesthesiology), Maj Ronit Malka (Laryngology) and Maj Spencer Nam (Neurologist). These exceptional active-duty clinicians represent the future of military medical research, bringing diverse expertise and a passion for innovation to research within the Defense Health Agency.

The CSION program was initiated in 2019 and shepherds promising active-duty clinicians whose work has practical applications in becoming clinician-scientists. The CSION program is unique because it is tri-service, Corps neutral, has no service obligation, and focuses on its research mission rather than a degree-granting.

The pipeline a CSION fellow follows is tailored to the needs of the military mission. With no service obligation, motivated members are offered a non-financial incentive to remain in a career tract specifically designed to retain research-focused medical academics in the military.

The program is led by the Chief of the Brooke Army Medical Center Department of Clinical Investigation, 59 MDW Office of the Chief Scientist, Science & Technology (ST), San Antonio Uniformed Services Health Education Consortium (SAUSHEC), and all their partners within the United States Army Institute of Surgical Research (USAISR), San Antonio Military Health System (SAMHS) and Naval Medical Research Unit San Antonio (NAMRU-SA) to provide mentors willing to train and mentor clinician scientists in all areas of (DHP RDT&E) programmatic research.

The Chief of the Brooke Army Medical Center Department of Clinical Investigation, 59 MDW Office of the Chief Scientist Science & Technology (ST), and San Antonio Uniformed Services Health Education Consortium (SAUSHEC) welcomes the CSION class of 2026. We eagerly anticipate the groundbreaking research you will undertake to address DHA requirements to enhance warfighter lethality and readiness.



Advancing Airway Safety: A Review of Antimicrobial-Coated Endotracheal Tube Innovation

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



Photo by Lisa Braun

Antimicrobial-coated endotracheal tubes have emerged as a critical development in airway management, offering a promising strategy to reduce infections in mechanically ventilated patients. In their 2025 narrative review published in the *Journal of Critical Care*, Richardson, Fuller, April, Rizzo, Douin, Moran, Smith, Bebart, and Schauer draw on their diverse expertise from leading military and academic medical centers to examine how these innovations may reshape modern critical care.

The authors' combined experience—rooted in military medicine through the U.S. Air Force and U.S. Army, strengthened by clinical practice at Brooke Army Medical Center and the 59th Medical Wing at JBSA-Lackland, and broadened through appointments at academic research institutions—offers an informed perspective on the persistent challenges of airway management. Their combined experience in emergency medicine, combat casualty care, toxicology, and critical care medicine offered a front-line perspective on traditional endotracheal tubes, devices that for decades provided reliable mechanical ventilation yet offered no intrinsic defense against microbial colonization.

Repeated encounters with ventilator-associated pneumonia across military treatment facilities, civilian trauma centers, and university hospitals highlighted the urgent need for improvement. The limitations of conventional tubes especially in high-risk environments such as battlefield evacuation, emergency resuscitation, and intensive care, became a consistent point of concern. These shared observations set the stage for a comprehensive review of antimicrobial-coated technologies designed to interrupt infection at its earliest origin.

The review traces the evolution of coating strategies developed through collaborations among clinical researchers, biomedical engineers, and federal laboratories. Advances include surface treatments that directly inhibit bacterial adherence, metallic-ion coatings that disrupt microbial viability, and polymer technologies engineered to resist biofilm formation while preserving tube flexibility and safety.

Aircrew Mental Health as an Operational Gap: Advancing Support Through Aviation Peer Programs

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



U.S. Marine Corps Capt. Shawn O-Neil, (left) and F-35C Lightning II Pilot, and Staff Sgt. Justin Braun, (right). Photo by Airman 1st Class Jennifer Nesbitt.

At the 2025 Military Health Research Symposium, Maj William Hoffman, a neurologist and researcher with the 59th Medical Wing's Office of Science and Technology (OST), delivered a podium presentation titled "Aircrew Mental Health as an Operational Gap: Early Experience with Aviation Peer Support." His presentation highlighted an early feasibility assessment of a novel intervention designed to strengthen readiness and support the mental health of military aircrew.

Previous research conducted by the OST has identified elevated rates of healthcare avoidance among military pilots, often linked to concerns that seeking psychological care could jeopardize flight status.

These findings underscore an operational challenge that affects both individual well-being and mission readiness. In contrast, the civilian aviation sector has established international recognition for aviation peer support programs that provide confidential and nonjudgmental assistance while reinforcing flight safety and performance. These programs empower trained aviation personnel to serve as peer supporters, reducing stigma and encouraging early intervention before more serious issues arise.

Preliminary findings revealed that aviation peer support is both feasible and well-received among U.S. Air Force flight personnel. Participants reported increased trust and engagement with peer supporters, reflecting the potential for such programs to reduce healthcare avoidance and enhance early access to mental health resources. Additionally, the assessment identified several operational and structural gaps to inform future program refinement. The initial results are currently pending publication in *Military Medicine*, with a follow-on proposal submitted to the Peer-Reviewed Medical Research Program to expand the research scope.

This initiative exemplifies the 59th Medical Wing's ongoing commitment to advancing operationally relevant research that directly enhances combat readiness. Through cross-organizational collaboration and innovation, the Office of Science and Technology continues to translate research into actionable solutions that safeguard the health and resilience of Air Force personnel.

Association of Nontechnical Skills and Cognitive Load with Technical Performance During Simulated En Route Critical Care Missions

Author: 59th Medical Wing Chief Scientist's Office, Science & Technology



One of the primary initiatives of the 59th Medical Wing (59MDW) En Route Care Research Center is to utilize multimodal assessments during realistic simulations of air transport in future operating environments. The objective of these simulations is to gain a comprehensive understanding of the training and technology requirements for enroute care. By replicating the conditions that medical personnel may face during air transport missions, the center aims to identify areas for improvement and ensure that caregivers are well-prepared to provide high-quality medical care in challenging settings.

A dedicated research team, comprising members from the University of Colorado Denver, the University of Edinburgh, Mass General Brigham, and the Henry M. Jackson Foundation for the Advancement of Military Medicine, has been instrumental in this endeavor. This diverse team has brought civilian expertise from spaceflight medical simulation research to the table, integrating best practices into the field simulation and research platform at 59MDW. Their collaboration has enabled the center to enhance the realism and effectiveness of its simulations, ensuring that the insights gained are directly applicable to real-world scenarios.

By leveraging these multimodal assessments and incorporating expertise from various prestigious institutions, the 59MDW En Route Care Research Center is at the forefront of advancing enroute care. The center's efforts are crucial in developing innovative training methods and technologies that can significantly improve patient outcomes during air transport missions, ultimately contributing to the overall mission readiness and effectiveness of military medical personnel.

The research team collaborated with the 59th Medical Wing (59MDW) CCAT Pilot Unit and the Uniformed Services University of the Health Sciences (USUHS) Center for Biotechnology (4DBio3) to conduct an important data collection exercise. This exercise was part of the Validated Assessment Platform for Operational Readiness (VAPOR) program and took place in a static C130 aircraft at the Torch Site on Lackland Air Force Base.

Continues.

During this Critical Care Air Transport Team (CCATT) exercise, the CCATT teams received sustainment training in a highly challenging environment. The training scenario involved transporting a significantly larger number of simulated patients than the current CCATT mission capabilities typically handle. This set-up allowed for an intense and realistic training experience that pushed the teams to their limits.



The teams utilized actual CCATT equipment, creating an authentic environment where they had to respond to real-time vital signs of the simulated patients. This realistic training scenario ensured that the teams were able to practice and refine their skills in an environment that closely mimicked real-world conditions.

By partnering with various esteemed institutions and leveraging cutting-edge simulation technology, the exercise provided valuable insights into the operational readiness of CCATT teams. The data collected during this exercise will be instrumental in improving training protocols, enhancing equipment performance, and ultimately ensuring that CCATT teams are well-prepared to provide critical care during air transport missions.

The research team gathered an extensive array of data, including video, audio, and wearable sensor information, significantly enhancing their data collection capabilities in field environments. By leveraging these diverse data sources, the research aims to gain a comprehensive understanding of team strengths and weaknesses when operating in a high patient volume environment. The ultimate goal is to identify effective tactics to improve the readiness and performance of Critical Care Air Transport Teams (CCATT) in potential future operating environments.

Calendar Events

- ▶ BioMedSA Bioinvest, 14 Apr 26, 4:30pm-6:30pm, Rosenberg Skyroom, UIW
- ▶ REA-Sample Size Est. Part II, Ms. Moore, Wed, 15 April 26, 0900-1000, Teams
- ▶ REA-Grantsmanship, Dr. Vic Sylvia, Wed, 22 April 26, 0900-1000, Teams
- ▶ 2026 AIM Health R&D Summit, 19 May 2026, HBGCC
- ▶ CAMD Scientific Presentation is the last Thursday of every month; contact Dr. Asin with questions/invitation
- ▶ 2026 JBSA-Randolph Air Show & Open House, 1-3 May 2026
- ▶ ProPEL 2026, Mon, 18 May 2026, 1300-1630, VelocityTX
- ▶ 2026 AIM Health R&D Summit, 19 May 2026, HBGCC
- ▶ 2026 MHSRS: TENTATIVE: 3-6 Aug 26, FL

The 59 MDW HRPP Office of Research of Protocol Support offers EIRB Training

Our staff are here every step of the way to provide help! Schedule an individual or a group appointment to get personal attention from our staff. Training is offered via Microsoft Teams (commercial), please follow instructions provided with your confirmation email. We also offer personalized training on record-keeping, consenting, protocol life cycle management and non-IRB requirements (privacy, surveys, data sharing). Please contact us with your one-on-one or group training requests!

To register for a training, please email us at: dha.jbsa.59th-MDW.mbx.59-MDW-CRD-Protocol@health.mil

FUNDING ANNOUNCEMENTS

National Institute of Health (NIH): <https://grants.nih.gov/grants/how-to-apply-application-guide/duedates-and-submission-policies/duedates.htm>.

Defense Advanced Research Projects Agency (DARPA), Biotechnologies Office (BTO): BTO's mission is to develop capabilities that leverage the unique properties of biology adaptation, replication, resilience, and complexity, to revolutionize how the United States defends the homeland and prepares and protects its Warfighters. Research in BTO creates biotechnological capabilities that provide tactical care and restore function to injured warfighters, increase operational resilience, develop novel functional materials, and detect and protect against threats to maintain force readiness. This announcement seeks revolutionary research ideas for topics not being addressed by ongoing BTO programs or other published solicitations. For more information use Funding Opportunity Number: [HR00126S0003: DARPA Biological Technologies BAA FY26](#).

The Medical Technology Enterprise Consortium (MTEC) is a nonprofit corporation that operates under an Other Transaction Agreement (OTA) for prototypes with the U.S. Army Medical Research and Development Command (USAMRDC). MTEC is a significant potential funding source for those conducting research in areas of interest to the military. For more information, visit <https://mtec-sc.org/solicitations/>.

City of San Antonio Seed Funding (Grant) for SBIR/STTR Proposal Development: The City of San Antonio Economic Development Department (EDD) launched a program to help offset the costs associated with developing and submitting proposals to the various Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (DoD, HHS, SOCOM, NIH, etc.). San Antonio-based companies can submit a proposal to EDD's SBIR/STTR Grant Program for consideration. If selected by the SA City Council, EDD would provide initial funding to help the company develop and submit a SBIR/STTR proposal to one or more government sponsored SBIR/STTR proposal calls. For more information, visit <https://www.sanantonio.gov/EDD/Programs-Grants>.

The Defense Intrepid Network Announces the Translating Research into Practice (TRIP) Initiative: The Defense Intrepid Network for TBI and Brain Health announced the official launch of the Translating Research into Practice (TRIP) initiative. The TRIP initiative's primary objective is to support, through collaboration and partnership, the translation of effective research outcomes into clinical standards of care for the improvement of brain health and management of patients with TBI. For additional information on the TRIP initiative, please contact TRIP Coordinator Dr. Theresa Woo at dha.bethesda.j-11.mbx.trip@mail.mil.

Broad Agency Announcement (BAA)

FY23-FY28 United States Special Operations Command (USSOCOM), BAA for Extramural Biomedical and Human Performance Research and Development. A primary emphasis of the USSOCOM Biomedical, Human Performance, and Canine Research Program is to identify and develop techniques, knowledge products, and materiel (medical devices, drugs, and biologics) for early intervention in life-threatening injuries; prolonged field care (PFC); human performance optimization; canine medicine/performance; brain health; immune response; automation of systematic reviews and meta-analysis; and novel post-traumatic stress, depression, and anxiety treatment. This Funding Opportunity Announcement is a BAA. It is continuously open for a 5-year period, from 1 August 2023 closing 31 July 2028. For more information see <https://ebrap.org/eBRAP/public/ProgramFY.htm?programFYId=549113>.

FY23-FY27 The United States Army Medical Research and Development Command (USAMRDC). Broad Agency Announcement (BAA) for Extramural Military Medical Research and Development (Funding Opportunity Number HT9425-23-S-BAA1). Research and development funded through this BAA are intended and expected to benefit and inform both military and civilian medical practice and knowledge. This BAA utilizes competitive procedures in accordance with 10 USC 2302(2) (B) for the selection for award of S&T proposals/applications. For the purposes of this BAA, S&T includes activities involving basic research, applied research, advanced technology development, and, under certain conditions, may include activities involving advanced component development and prototypes. The FY23-FY27 USAMRDC BAA is continuously open for a 5-year period, from 1 October 2022 through 30 September 2027. A full proposal/application must be submitted through Grants.gov (<http://www.grants.gov/>).

Biomedical Advanced Research and Development Authority (BARDA) Division of Research, Innovation & Ventures (DRIVE) funds early-stage companies for life-saving innovation. Check out their programs to see current funding opportunities at <https://www.drive.hhs.gov/>.

SAM.GOV: A website maintained by Government Services Administration (GSA) that supports System for Award Management (SAM) and consolidates contract opportunities, contract data, and much more. Opportunities are listed on this site for possible medical R&D funding, such as Requests for Information (RFI), Requests for Proposals (RFPs), and more. Click here to search: <https://sam.gov/search/>.

General Services Administration (GSA) Prize Competitions: General Services Administration (GSA) manages **Challenge.Gov**, the official hub for prize competitions and crowdsourcing campaigns (together referred to as “challenges”) across the U.S. federal government. Through this platform, federal agencies engage public solvers in challenges to identify innovative solutions to important government and public issues of interest. Visit <https://www.challenge.gov/> to view various challenges that are sorted by displaying those that are closing soonest.

DHA Innovation Fellowship Program - Empowering Frontline Innovators to Drive Change

This DHA-funded fellowship aims to bridge gaps, empowering and supporting you to tackle a challenge you face daily and create solutions that make a lasting impact.

You are eligible if: You are active-duty or a DHA GS civilian; have at least 12 months left at your location and have adequate bandwidth to complete the project.

Identify the specific local-level challenge or issue that you're looking to address and develop your pitch. Ensure your project idea is not research focused (creating new knowledge) but instead, focuses on developing or implementing tangible, marked ready products, services, or processes.

The DHA fellowship opportunity has some strict requirements for eligibility to apply.

Proposals considered ineligible include:

Research studies that require IRB approval or are intended for scholarly publication.

Efforts focused on procurement, contracting, sustainment, or enterprise-level implementation of an already existing tool, process, or technology.

Below are the released FY26 pre-announcements available for consideration

- Amyotrophic Lateral Sclerosis Research Program, <https://cdmrp.health.mil/pubs/press/2026/alsrppreann>
- Arthritis Research Program, <https://cdmrp.health.mil/pubs/press/2026/atrppeann>
- Breast Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2026/bcrppreann>
- Hearing Restoration Research Program, <https://cdmrp.health.mil/pubs/press/2026/hrrppreann>
- Lung Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2026/lcrppreann>
- Lupus Research Program, <https://cdmrp.health.mil/pubs/press/2026/lrppreann>
- Melanoma Research Program, <https://cdmrp.health.mil/pubs/press/2026/mrppreann>
- Multiple Sclerosis Research Program, <https://cdmrp.health.mil/pubs/press/2026/msrppreann>
- Orthopaedic Research Program, <https://cdmrp.health.mil/pubs/press/2026/orppreann>
- Ovarian Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2026/ocrppreann>
- Pancreatic Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2026/pcarppreann>
- Peer Reviewed Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2026/prcrppreann>
- Spinal Cord Injury Research Program, <https://cdmrp.health.mil/pubs/press/2026/scirppreann>
- Tick-Borne Disease Research Program, <https://cdmrp.health.mil/pubs/press/2026/tbdrppreann>
- Tuberous Sclerosis Complex Research Program, <https://cdmrp.health.mil/pubs/press/2026/tscrppreann>
- Vision Research Program, <https://cdmrp.health.mil/pubs/press/2026/vrppreann>

Grants.gov website <https://Grants.gov>. A listing of all CDMRP and other USAMRDC extramural funding opportunities can be obtained on the Grants.gov website by performing a basic search using Assistance Listing.

Congressionally Directed Medical Research Programs (CDMRP): All CDMRP funding opportunities, both recently and previously released are available on the CDMRP website <https://cdmrp.health.mil>.

On February 3, 2026, the President signed into law the "Consolidated Appropriations Act, 2026," which includes \$1.27 billion in appropriations for 34 research funding programs managed by the CDMRP. The CDMRP will release pre-announcements and funding opportunity announcements as soon as available for each program.

Pre-announcements provide a brief overview of anticipated award mechanisms within each program and are posted to the CDMRP website at <https://cdmrp.health.mil>. Funding opportunity announcements include detailed descriptions of award mechanism intent, evaluation criteria, submission requirements, and deadlines.



MAY 19, 2026
SAN ANTONIO

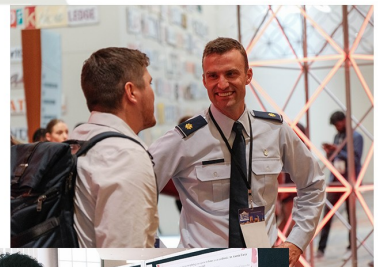
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Science and Technology Contact Information



Our Vision

Grow Medical Leaders, Drive Innovations in Patient Centered Care and Readiness

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YouTube: <https://youtu.be/MNVv14R-X4s?si=im8ctAYG6wH2rjdV>