



Research Today



Chief Scientist Vision: *Be the Premier DHA Clinical Research & Training Site*

VOLUME 10, ISSUE 5

AUGUST 2025

Published by: Chief Scientist's Office
59 MDW/ST
(210) 292-2097

Forging the Future of Military Medicine: 59th Medical Wing Leads Innovation at AIM Health R&D Summit

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

Page 1 and 2. Forging the Future of Military Medicine: 59th Medical Wing Leads Innovation at AIM Health R&D Summit

Page 2. Combat Casualty Care Technology Receives FDA Breakthrough Designation for the "AI-GUIDE"

Page 3. The Air Force Leverages REDCapCloud.com for Efficient Data Capture

Page 4. REDCapCloud.com for Efficient Data Capture

Page 5. Researchers Investigate Early Onset Parkinson's Disease in Active-Duty Military

Page 6. Coagulase-Negative Staphylococci in ECMO Patients

Page 7 and 8. Dizziness and Disturbed Sleep

Page 9. Special Issue: Diagnosis and Detection of Respiratory Virus and Bacteria

Page 10. DMTS Administration Enhances Survival Following Cyanide Exposure

Page 11. Unmanned Aircraft Systems: Transforming the Landscape of Military Medicine

Page 12. Maj William Tyler Davis was recognized twice for his accomplishments

Page 13. Welcoming Major Kathryn "Katie" Capple

Page 14 and 15. 59th MDW Recognizes Civilian Excellence with Annual Awards

Page 16 . Dr. Rebecca Heyne: Advancing Evidence-Based Practice Across the Defense Health Agency

Page 17 and 18. Discovering Careers in Infectious Disease: A Look at Civilian and Military Opportunities

Page 19. Dr. Lauren Cornell Inspires Future Biomedical Engineers

Page 20. Dr. Tarjani N. Shukla Highlights Precision Medicine in Anesthesia

Page 21. LTC Raus's Research Fellowship at the 59th MDW

Page 22. Celebrating Clinical Trials Day



More than 600 attendees and 60 distinguished speakers gathered for the 2025 AIM Health R&D Summit at the Henry B. Gonzalez Convention Center in San Antonio, Texas. The summit featured more than 70 presentations, expert panels, and interactive workshops that created a dynamic collaborative space to advance military medicine and research innovations. The conference served as an essential platform that united leaders from government institutions with academia and industry representatives who work to expedite the development and application of vital medical knowledge and technologies into the field.



A memorable moment happened when Dr. Debra Niemeyer presented a memo of appreciation to outgoing San Antonio Mayor Ron Nirenberg on behalf of Brig. Gen. Gwendolyn Foster, the 59 MDW Commander. The gesture recognized the Mayor's unwavering support and steadfast advocacy for the military healthcare and R&D mission in Military City USA. Dr. Niemeyer also presented the Mayor with a Wilford Hall Ambulatory Surgical Center (WHASC) coin, recognizing the city's deep civic-military partnership and support. This alliance continues to drive medical breakthroughs that protect and save lives on and off the battlefield, improve healthcare outcomes, and bridging science, service, and community in powerful ways.



Dr. Robert Christy, Dr. Margaux Salas, Dr. Victor Sylvia

The 59 MDW/ST also proudly celebrated a major research milestone at AIM 2025. Dr. Margaux Salas received 2nd Place in the San Antonio Military Health System University Research Forum (SURF) poster awards for her presentation on Early Onset Parkinson's Disease (EOPD) in active-duty service members. This prestigious recognition highlights the team's dedication to addressing critical health issues affecting military readiness. The award-winning study exemplifies the innovation, rigor, and compassion that define military medical research. The SURF poster award also recognized Dr. Salas and the entire research team for their exceptional work, emphasizing the importance of advancing understanding and care for conditions that impact the military population.

Continues..

DISCLAIMER: Individual views expressed within this newsletter are those of the authors and do not necessarily reflect the official views of the Department of Defense or its Components, the official policy or position of the Air Force, the Department of Defense or the U.S. Government.



The summit's theme, which focused on readiness, resilience, and rapid innovation, found its expression through active engagement from the 59 MDW Chief Scientist's Office. The Department of Defense's most forward-thinking medical research team demonstrated its dedication to military health transformation through strategic partnerships and scientific excellence. The summit activities revealed both their current research initiatives and future possibilities, which work to enhance the well-being of warfighters and veterans.

The 59 MDW/ST and VelocityTX have established a rapidly expanding partnership that serves as the leading bioscience innovation hub in San Antonio. The purpose of this alliance is to close the distance between new discoveries and the genuine healthcare requirements of military personnel. The strategic collaboration between the military medical priorities and VelocityTX's entrepreneurial ecosystem enables faster and more efficient technology transitions from concept to clinical application compared to traditional processes.



Dr. Scott F. Walter

The event demonstrated that such intersectoral partnerships play an essential role in national defense alongside global health security. During the summit, attendees observed directly how the partnership between 59 MDW/ST and VelocityTX speeds up medical product (capability) development while providing military personnel with advanced medical solutions at critical moments.

The collaborative spirit demonstrates the AIM Health R&D Summit's fundamental purpose to enable stakeholders to work together to address intricate health issues through innovative solutions, shared knowledge, and investment in progressive answers.

The 2025 AIM Health R&D Summit demonstrated that San Antonio functions as Military City USA while establishing itself as an emerging medical innovation hub. Through their leadership, 59 MDW/ST and VelocityTX establish San Antonio as the leading location for revolutionary healthcare breakthroughs that will continue for multiple years.

Calendar Events

- ◆ **Office of Research and Technology Applications (ORTA) annual training and Grant Writing presentation** at VelocityTX and at 59MDW/ST Building 10 Sep 2025, Virtual and in person.
For registration information: lina.e.rivera.ctr@health.mil and/or dianna.m.herrera.ctr@health.mil
- ◆ **2025 TSMC Annual Symposium**, 16-17 Sep 2025 at the Bear Mountain Resort near West Point NY
- ◆ **2025 AAALAC Global Virtual Conference**, 7-8 Oct 25, Virtual
- ◆ **OpMed March 17-18, 2026**. Registration opens September 2025. Sponsorship and exhibits opportunities open now
General Inquiries: Emma Watters ewatters@dsigroup.org (201)987-0183

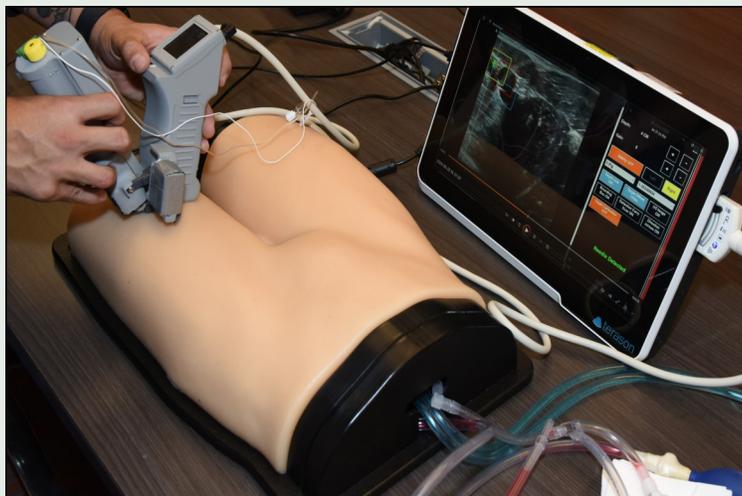
Center for Advanced Molecular Detection (CAMD) Monthly Scientific Presentations

The Center for Advanced Molecular Detection (CAMD) has been hosting monthly Scientific Presentations since January of 2021. These presentations have undergone significant evolution since their inception, initially involving scientists solely within the 59th MDW Science and Technology group.

Those interested in participating or attending these scientific presentations can contact the CAMD Director, Dr. Susana N. Asin, at Susana.n.asin.civ@health.mil or by phone at 210-292-0504.

Combat Casualty Care Technology Receives FDA Breakthrough Designation for the “AI-GUIDE”

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



The Defense Health Agency (DHA) Director, Dr. David Smith, showcased a significant breakthrough in combat casualty care when he visited San Antonio, Texas, in April of 2025 as the U.S. Food and Drug Administration (FDA) granted Breakthrough Device Designation to the "AI-GUIDE" system, with researchers from the Massachusetts Institute of Technology's Lincoln Laboratory (MIT LL). This artificial intelligence-enabled system is designed to assist frontline medical personnel in establishing rapid and accurate vascular access in austere combat environments. The DHA supports this innovation through funding to create a system that helps frontline medical providers establish vascular access efficiently and precisely in combat zones with limited resources.



AI-GUIDE (Artificial Intelligence–Guided Ultrasound Interventional Device) is a robotic medical technology that researchers at MIT's Lincoln Laboratory developed. It is designed to assist frontline medical personnel—especially those in military or remote settings—in rapidly and reliably gaining vascular access (such as inserting an intravenous line or catheter) in high-stress, low-resource environments.

The FDA Breakthrough Devices Program designation represents a significant achievement for battlefield medical care. The FDA Breakthrough Devices Program accelerates the development and evaluation process for medical devices that deliver superior treatments for fatal medical conditions. Notably, Dr. Jason Rall and Colonel

Wayne Causey, of the 59th Medical Wing – Science and Technology and the 959th Medical Group, JBSA-Lackland, supported MIT LL by collaborating under the Data Transfer Agreement (DTA) with Brooke Army Medical Center (BAMC), which enabled the AI-GUIDE project.

The AI-GUIDE device operates within a DHA research program that focuses on noncompressible torso hemorrhage (NCTH) because it represents the primary cause of preventable combat deaths in current military operations. The identification of internal bleeding sources through invasive surgical exploration causes delays in administering life-saving treatments for NCTH. The DHA accelerated innovation by providing animal experiment data from swine models that simulated battlefield injuries to MIT LL. To accelerate innovation, the DHA provided MIT LL with a comprehensive data set from the 59th Medical Wing, derived from animal experimentation using swine models designed to simulate battlefield injuries.

These data were collected to support an ongoing study titled “Localization of Noncompressible Torso Hemorrhage Using Minimally-Invasive Endovascular Techniques to Detect Battlefield Relevant Injuries.” The goal: to test and refine technologies capable of localizing internal bleeding without surgical intervention.

Under Dr. Brian Telfer's leadership, MIT LL is conducting advanced analysis and modeling to interpret these data. This work is expected to yield a final report and multiple technical outputs. Collaborators will also contribute to scientific manuscripts and presentations.

As noted by Dr. Smith during his San Antonio briefing, the AI-GUIDE device and associated research exemplify the DHA's commitment to delivering cutting-edge solutions that save lives and enhance battlefield readiness.

Streamlining Research: The Air Force Leverages REDCapCloud.com for Efficient Data Capture

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

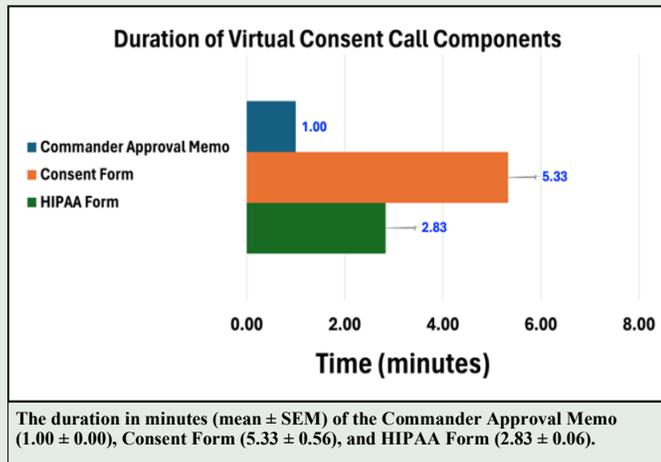
The 59th Medical Wing at JBSA-Lackland, San Antonio, TX, is at the forefront of integrating advanced technology into its research endeavors, reflecting a proactive approach to improving efficiency and accuracy in scientific investigations. Recognizing the limitations of traditional data collection methods, the Wing is strategically adopting innovative solutions to streamline its processes. A recent study published in the *Journal of the Society for Clinical Data Management* serves as a prime example of this commitment.

The research details the successful implementation of REDCapCloud.com, a sophisticated data science platform, within the US Air Force research infrastructure. This platform is designed to revolutionize how data is collected, managed, and analyzed, moving away from cumbersome paper-based systems and embracing a digital, integrated approach.

The study, led by Matthew J. Gdovin and a team of dedicated researchers, provides concrete evidence of REDCapCloud.com's transformative potential. By optimizing study enrollment, simplifying data collection, and enhancing data security, the platform promises to significantly accelerate the pace of research, ultimately leading to quicker discoveries and more effective solutions to critical medical challenges facing the Air Force and the broader military community. This initiative highlights the 59th Medical Wing's dedication to fostering a culture of innovation and continuous improvement in its pursuit of medical excellence.

REDCapCloud.com offers a robust suite of tools designed for regulatory-grade usage, including virtual consenting, electronic data capture, and customizable study workflows. This technology was strategically chosen to support a large-scale genomics study focused on identifying resilience-related risk and protective factors in military personnel. The platform's ability to handle sensitive data securely and efficiently made it an ideal solution for this critical research initiative.

The study aimed to test REDCapCloud.com's capabilities across several key areas: participant identification based on inclusion criteria, facilitating virtual consent and secure document signing, automated distribution of signed consent forms, delivery and collection of web-based surveys, and collection of mailing addresses for DNA sample collection.



Researchers employed a hybrid approach, combining both moderated and unmoderated workflows to thoroughly evaluate the platform's effectiveness. The results were compelling. REDCapCloud.com accurately screened mock participants, successfully scheduled virtual consent calls, collected consent and HIPAA signatures, and securely delivered password-protected forms. The programmed branching logic seamlessly triggered the delivery of 15 different instruments for data capture and efficiently collected shipping addresses for DNA analysis.

The findings strongly suggest that REDCapCloud.com is a valuable asset for researchers. Its capabilities significantly expedite study screening, enrollment, virtual consent processes, and data capture. The platform's built-in validation component ensures data accuracy, while its de-identification feature enhances data privacy.

This technology promises to facilitate more efficient and secure research, ultimately contributing to advancements in understanding and addressing the unique health challenges faced by military personnel. This initiative underscores the 59th Medical Wing's commitment to leveraging science and technology to improve healthcare outcomes.

The collaborators and their organizations: Matthew J. Gdovin^{*,†}, Dianna Herrera^{*,‡}, Katharine K. McMillan[§], August N. Blackburn and Lauren E. Cornell^{*} Science and Technology, 59th Medical Wing, US Air Force, JBSA-Lackland, San Antonio, TX, US[†] ASI, Upper Marlboro, MD, US[‡] CICONIX, LLC, Annapolis, MD, US[§] Behavioral Science Consultant, San Antonio, Texas, US^{||} Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH, US

Journal of the Society for Clinical Data Management.2025; 5(1): 7, pp. 1–7. DOI: <https://doi.org/10.47912/jscdm.415>:

59MDW/BAMC Researchers Investigate Early Onset Parkinson's Disease in Active-Duty Military

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



Dr. Margaux M. Salas awarded 2nd Place for her presentation of the study's findings

Researchers from the 59th Medical Wing (59MDW) and Brooke Army Medical Center (BAMC) have undertaken a crucial study exploring the prevalence and characteristics of Early Onset Parkinson's Disease (EOPD) within the active-duty military population.

The study, titled "Exploring Early Onset Parkinson's Disease: A Retrospective Chart Review of Active-Duty Military Personnel," is authored by Margaux M. Salas, Victoria T.P. Nguyen, Jessie R. Jacobsen, Christian J. Hernandez-Zegada, Zahari N. Tchopov, Elijah Miranda, Matthew Brock, and William R. Hoffman, representing a collaborative effort to address a significant neurological concern.

Parkinson's Disease (PD) is a progressive neurodegenerative disorder typically associated with older age. However, a subset of individuals develops the condition before the age of 50, classified as EOPD. The etiology of EOPD can be complex, potentially involving genetic factors, environmental exposures, and other unknown contributors. Understanding the occurrence and potential risk factors for EOPD within the unique context of active-duty military personnel is paramount.

This retrospective chart review aims to identify cases of EOPD within the active-duty military population and analyze relevant clinical data. By examining medical records, the researchers seek to characterize the demographic features, medical history, potential environmental exposures, and disease progression patterns of individuals diagnosed with EOPD while serving in the military.

The findings of this study could have significant implications for the health and well-being of active-duty service members. Identifying potential risk factors or early warning signs of EOPD could lead to improved screening and diagnostic strategies, allowing for earlier intervention and management of the disease. This, in turn, could potentially mitigate the impact of EOPD on the individual's health, career, and overall quality of life.

Furthermore, this research contributes to the broader understanding of EOPD etiology and pathogenesis. The unique experiences and potential exposures of active-duty military personnel may provide valuable insights into the factors that contribute to the development of this debilitating condition. The study underscores the commitment of 59MDW/BAMC researchers to addressing important healthcare challenges facing the military community and advancing the knowledge of neurological disorders. The results of this study are eagerly anticipated and are expected to inform future research and clinical practice related to EOPD in active-duty military personnel.

This important research was recognized at AIM 2025, where the team received the SURF Poster Award. Specifically, Dr. Margaux Salas was awarded 2nd Place for her presentation of the study's findings. The SURF Poster Awards highlight outstanding research contributions, showcasing the dedication and innovation of military medical professionals. This EOPD study exemplifies that commitment.

The 59th MDW is incredibly proud of Dr. Salas and the entire research team for their outstanding work on this critical issue. Their dedication to understanding and addressing Early Onset Parkinson's Disease in our active-duty population is commendable, and this award is a well-deserved recognition of their efforts.

Coagulase-Negative Staphylococci in ECMO Patients: Defining True Bacteremia

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



Members of the 59th Medical Wing Extracorporeal Membrane Oxygenation and Critical Care Air Transport Team

Extracorporeal membrane oxygenation (ECMO) is a life-saving therapy for patients with severe respiratory or cardiac failure. However, this complex intervention is not without its risks, including bloodstream infections. Coagulase-negative Staphylococci (CoNS) are often cited as the most common cause of bacteremia in ECMO patients, yet the reported incidence varies significantly between different medical centers. This inconsistency highlights the need for a clearer understanding of CoNS bacteremia in this vulnerable population.

To investigate this issue, a retrospective cohort study was conducted, examining all patients who received ECMO at a single institution between January 2022 and March 2024. Researchers analyzed blood cultures obtained during ECMO support, focusing on the isolation of CoNS. The study aimed to determine the

prevalence of CoNS bacteremia and to assess the impact of different bacteremia definitions on reported infection rates.

The study included 68 patients who received ECMO, during which a total of 424 blood culture sets were collected. CoNS were isolated in 20 (4%) of these culture sets, affecting 13 (19%) of the patients. Notably, repeat isolation of CoNS was observed in only 5 (38%) of these patients. Furthermore, common clinical indicators of infection, such as fever and elevated white blood cell counts (leukocytosis), failed to reliably predict repeat positivity for CoNS.

The results revealed a striking variability in CoNS bacteremia rates, ranging from 0 to 15 infections per 1,000 ECMO days, depending on the specific definition applied. This wide range underscores the challenges in accurately diagnosing CoNS bacteremia in ECMO patients and highlights the potential for both overestimation and underestimation of true infection rates.

One of the primary concerns with CoNS is their ability to form biofilms on medical devices, including ECMO circuits. These biofilms can serve as a persistent source of infection and are notoriously difficult to eradicate. However, the study found that most CoNS isolates were only identified in a single blood culture, suggesting that many of these findings may represent contamination or transient bacteremia rather than true, persistent infection.

Given the limited utility of clinical markers and the high rate of false-positive results, the researchers emphasize the importance of obtaining repeat blood cultures when CoNS are initially isolated in ECMO patients. To address the lack of a standardized definition for CoNS bacteremia, the study proposes a more rigorous diagnostic criterion: the isolation of CoNS from two subsequent blood cultures. This approach aims to reduce the likelihood of misdiagnosing contamination as true infection and to improve the accuracy of bacteremia reporting in ECMO patients.

By implementing a standardized definition based on repeat isolation, clinicians can better distinguish between true CoNS bacteremia and transient contamination, leading to more appropriate antibiotic use and improved patient outcomes. Further research is needed to validate this proposed definition in larger, multi-center studies and to explore optimal strategies for preventing and managing CoNS infections in ECMO patients. A more precise understanding of CoNS bacteremia will ultimately contribute to safer and more effective ECMO support.

For more information on the challenges of diagnosing Coagulase-Negative Staphylococcus (CoNS) bacteremia in patients receiving Extracorporeal Membrane Oxygenation (ECMO), see:

Wells CB, O'Neil ER, Sobieszczyk MJ, Marcus JE. "Diagnosis of Coagulase-Negative Staphylococcus Bacteremia in Patients Receiving Extracorporeal Membrane Oxygenation" *Am J Infect Control*. 2025 May;53(5):602-606. doi: 10.1016/j.ajic.2025.02.004. Epub 2025 Feb 11. PMID: 39947521.

Special Issue

Diagnosis and Detection of Respiratory Viruses and Bacteria



pathogens

Guest Editors

Dr. Susana Asin
Dr. Hakim Bouamar

Deadline

20 September 2025

IMPACT
FACTOR
3.3

Indexed in:
PubMed

CITESCORE
6.4

Special Issue

Diagnosis and Detection of Respiratory Viruses and Bacteria

Message from the Guest Editors

The Special Issue will present the last updates/discoveries in respiratory pathogen diagnosis within the scope of the "Identification and characterization of pathogens". Research areas may include, but are not limited to, comparisons of the sensitivity and specificity of pathogen detection between portable and non-portable diagnostic platforms, the validation of prospectively and retrospectively collected samples, and comparisons among different methods for the collection of biospecimens, as well as the validation of different non-invasively collected biospecimens, such as saliva and nasopharyngeal throat swabs, compared with blood, which is seen as the gold standard. Testing devices can be based on nucleic acid amplification detection using either RNA or DNA, nanotechnology, isothermal amplifications, the characterization of host responses to either bacterial or viral infection, biomarkers, microfluidics, next-generation sequencing platforms using either targeted or agnostic approaches with the capacity to discover potential emergent pathogens, and antigenic approaches. We look forward to receiving your contributions.



Pathogens

an Open Access Journal
by MDPI

Impact Factor 3.3
CiteScore 6.4
Indexed in PubMed



mdpi.com/si/233943

Pathogens
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
pathogens@mdpi.com

[mdpi.com/journal/
pathogens](https://mdpi.com/journal/pathogens)

Dizziness and Disturbed Sleep: A Troubling Connection for Service Members and Veterans

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



Karen H. Lambert from Hearing Center of Excellence



Military service places significant physical and psychological demands on Service members and Veterans, potentially increasing their susceptibility to a range of health issues. Among these, dizziness is a common complaint, and its impact extends beyond the immediate sensation of imbalance.

Individuals experiencing dizziness frequently report poor sleep quality and abnormal sleep duration, both of which are linked to an elevated risk of falls and a diminished overall quality of life. While previous research indicates a high prevalence of poor sleep quality (around 69%) in the broader Service member and Veteran population, the relationship between dizziness and sleep disturbances within this group has remained unclear.

A recent research study aimed to address this gap by evaluating the sleep quality of Service members and Veterans with and without self-reported dizziness. The study sought to determine if those experiencing dizziness were more likely to report poorer sleep compared to their counterparts without this symptom. The study employed descriptive statistics to analyze the prevalence of self-reported dizziness among Service members and Veterans, considering various demographic characteristics.

Researchers also examined the prevalence of specific dizziness symptoms and the average age at which participants first noticed their dizziness. To investigate the association between dizziness and sleep, researchers constructed statistical models, both unadjusted and adjusted for potential confounding factors identified through a theoretical framework. These models regressed sleep disorders and daytime sleepiness on the frequency of dizziness. Military status (Service member vs. Veteran) was also explored as a potential modifying factor. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to quantify the strength and significance of the observed associations.

The study revealed that dizziness was reported by a significant proportion of participants: 22.4% of Service members (171 out of 763) and 31.7% of Veterans (241 out of 761). The key finding was that Service members and Veterans experiencing dizziness were 1.7 times more likely to have a sleep disorder compared to those without dizziness. This statistically significant association underscores the strong link between these two health concerns.

Continues..

These findings highlight the importance of addressing sleep disturbances in Service members and Veterans who present with dizziness. The study suggests that medical providers should proactively screen for sleep problems in these individuals. Evaluation for obstructive sleep apnea (OSA) is crucial, as this condition can significantly disrupt sleep and exacerbate dizziness symptoms. Treatment for chronic insomnia disorder (CID) should also be considered, utilizing evidence-based therapies to improve sleep quality and duration. Furthermore, referral for vestibular rehabilitation may be beneficial, as this specialized therapy can help improve balance and reduce dizziness symptoms, potentially leading to better sleep.

By recognizing the connection between dizziness and poor sleep quality among Service members and Veterans and implementing appropriate screening and treatment strategies, healthcare providers can improve the overall health and well-being of this vulnerable population. Addressing sleep disturbances in individuals with dizziness not only enhances their sleep quality but also potentially reduces their risk of falls, improves their quality of life, and optimizes their overall health outcomes.

For more information on the relationship between sleep quality and dizziness in Service members and Veterans, see: Hoppes CW, Erbele ID, Lambert KH, Thapa S, Rich ES, Yuan TT, Brock MS, Reavis KM. Sleep quality of service members and veterans with and without reports of dizziness. *J Vestib Res.* 2025 May 19:9574271251338696. doi: 10.1177/09574271251338696. Epub ahead of print. PMID: 40384621.

Photo 1 Released Janet Aker Defense Health Agency; Photo 2 U.S. Air Force Airman sleeps inside a C-17 Globemaster by Staff Sgt. Jordan Castelan.

59 MDW HRPP Announcements

The 59 MDW HUMAN RESEARCH PROTECTION PROGRAM (HRPP) Protects the rights and welfare of persons who voluntarily participate in research studies conducted by the 59 MDW staff. The conduct of research is deeply connected to the 59 MDW mission of “Exemplary Care, Global Response.” The 59 MDW is committed to the highest standards of research integrity. The 59 MDW’s accredited HRPP is an essential component of patient safety, and the Wing being a Human Research Office (HRO). For more information, please contact Jessica Mercado, Human Protections Administrator (HPA), at 210-292-2977, Jessica.mercado14.civ@health.mil, or Dr. Debra Niemeyer, Authorized Institutional Official (AIO), at 210-292-3355, debra.m.niemeyer.civ@health.mil.

Do you have questions about Data Sharing and the Data Sharing Agreement Application?

DHA’s Data Sharing Agreement (DSA) office does a table-talk every Tuesday afternoon via Microsoft Teams. It is an open forum where researchers can ask questions to DHA PCLO (Privacy & Civil Liberties Office) Subject Matter Experts. If you would like to join the table-talk to get answers regarding DSAs such as how they are managed, how to complete them, and the approval process. For more information on Data Sharing Agreements visit <https://www.health.mil/Military-Health-Topics/Privacy-and-Civil-Liberties/Data-Sharing-Agreements>.

Repeated Intramuscular DMTS Administration Enhances Survival Following Cyanide Exposure

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



Ms. Dena Norouzi PhD Candidate

During the 2025 Special Operations Medical Association (SOMA) Conference, in Raleigh, North Carolina, Ms. Dena Norouzi presented two research updates on behalf of Colonel Joseph Maddry's and his CRESTT team. The focus of one of those presentations was on advancements in cyanide antidote research within prehospital and tactical emergency settings.

The SOMA is a medical organization that brings experts from various fields worldwide, such as prehospital care and disaster medicine. The 2025 SOMA Scientific Assembly played a role in facilitating the exchange of knowledge among civilian healthcare providers, as well as researchers and industry professionals. This event serves as the conference for Tactical Emergency Medical Support (TEMS) of the National Tactical Officers Association (NTOA), highlighting both organizations' dedication to enhancing assistance for tactical missions in different settings.

Col Maddry's research and the presentation given by Ms. Norouzi, delved into the effectiveness of dimethyl trisulfide (DMTS), a substance used to counter cyanide exposure. It highlighted the drawbacks of treatments that involve IV administration in large quantities, which may not be feasible in situations involving mass casualties or limited resources. Past research indicated that a single dose of DMTS injected into the muscle (intramuscular, IM) led to a 100 percent survival rate at 60 minutes, in contrast to 25 percent in the control (untreated) group. The recent study aimed to investigate whether administering two doses of DMTS through IM injections could yield even better results. In a managed experiment conducted for research purposes, subjects were

randomly assigned to two groups. One receiving no treatment, and another receiving IM DMTS at time intervals, 5 minutes and 35 minutes post-exposure.

Several physiological measurements, such as mean arterial pressure, blood gases, and lactate concentrations, were documented throughout the study for analysis. The results were examined using a method known as repeated measures two-way ANOVA, with significance set at $p < 0.05$.

The findings showed that giving IM DMTS treatment two times, boosted survival rates among the subjects involved in the study. Out of the seven subjects who received the DMTS treatment regimen as part of the research experiment, six survived throughout the 120-minute observation period. In contrast, none of the four individuals in the control group survived beyond 60 minutes (with a p value of 0.0106). On average, subjects in the control group died, around 44 minutes after starting to experience apnea, 9 minutes before their death. Subjects who received treatment also responded with notably reduced lactate levels (measuring 3.1 ± 1 mmol/L compared to 5.8 ± 0.7 mmol/L). Blood oxygen levels, after exposure for 20 minutes were higher in the DMTS group compared to the control group (91.8 ± 11 Mm Hg, vs. 42.7 ± 8 mm Hg).

The results back up the idea that giving DMTS through two injections times could help treat acute cyanide poisoning effectively and might be a good option instead of using IV therapies, in emergencies with many casualties. Whether in military operations or civilian settings. However, animal testing is needed first before this treatment can be considered safe for humans.

Unmanned Aircraft Systems: Transforming the Landscape of Military Medicine

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



The proliferation of unmanned aircraft systems (UAS), commonly known as drones, has dramatically reshaped modern warfare. Initially used primarily for reconnaissance, UAS are now integral to offensive operations, offering an affordable and accessible tool for both state and non-state actors. While the impact of UAS on combat tactics is well-documented, their implications for military medicine are only beginning to be fully understood. This article explores the multifaceted ways UAS are influencing the military medical continuum, examining both the opportunities and challenges they present.

UAS technology offers several promising applications for enhancing medical care on the battlefield. One key area is medical resupply. UAS can efficiently deliver critical resources like blood products, essential medications, and portable medical equipment to remote or inaccessible locations. This capability is particularly valuable in austere environments where logistical constraints often hinder timely access to life-saving supplies. Early trials and operational deployments have demonstrated the potential of UAS to significantly reduce delays in providing necessary medical support to frontline personnel.

This research is exploring the use of UAS in casualty evacuation (CASEVAC). While still in its early stages, autonomous evacuation holds promise for rapidly transporting injured soldiers to medical facilities. However, significant limitations remain, including restrictions in payload capacity, the absence of onboard medical personnel, and the need for specialized triage protocols designed for autonomous systems. Overcoming these challenges is crucial for realizing the full potential of UAS in CASEVAC operations.

The rapid proliferation of UAS presents a complex and evolving landscape for military medicine. While UAS offer exciting opportunities to improve medical resupply and potentially enhance casualty evacuation, they also introduce significant threats to force protection and the delivery of essential medical care. Adapting to this new reality requires ongoing research, rigorous operational testing, and the development of clear regulatory frameworks. As UAS continue to shape the battlefield, military healthcare systems must proactively address both the capabilities, and the risks associated with this technology to ensure the safety and well-being of service members. Integrating UAS effectively into military medicine while mitigating their potential harm is paramount to maintaining operational effectiveness and upholding ethical standards in modern warfare.

Despite the potential benefits, the widespread adoption of UAS also introduces significant risks to military medical operations. Adversarial UAS pose a direct threat to force protection through persistent aerial surveillance, compromising the safety and security of medical personnel and facilities. Precision strikes and coordinated swarm attacks using UAS can severely disrupt the delivery of point-of-injury care, prolonged field care, CASEVAC, and medical evacuation. These emerging threats challenge long-held assumptions about air superiority and the ability to safely and rapidly evacuate casualties.

Moreover, the integration of counter-UAS technologies and electronic warfare adds further complexity to the battlefield. Interference with medical equipment and communication systems due to electronic warfare is a growing concern, requiring robust measures to ensure the reliability of critical medical infrastructure. Ethical considerations surrounding the use of autonomous systems in medical decision-making also demand careful attention and thorough investigation.

For further information on the medical implications of emerging Unmanned Aircraft Systems (UAS) in military and combat environments, see:

Nowadly CD Maj, Maddry JK Col, Vargas CR CPT, MacDonald AG Capt, Maksimenko YM Maj, Hewitt CW Lt Col, Silverman MB CPT, Sawyer DH Maj, Long BJ Lt Col. The Medical Implications of Emerging Unmanned Aircraft Systems in Military and Combat Environments: A Narrative Review. *Mil Med.* 2025 May 12; usaf189. doi: 10.1093/milmed/usaf189. Epub ahead of print. PMID: 40354101.

Photo by Becki Bryant Gray Eagle unmanned aircraft system (UAS)

Honors and Recognition

Maj William Tyler Davis, USAF, MC, Director, En Route Care Research Center, 59 MDW/ST was recognized twice for his accomplishments

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

Maj Davis has led the 59 MDW, Science & Technology, En route Care Research Center (ECRC) located within the U.S. Army Institute of Surgical Research (ISR). He secured research funds and generated original data and analyses to close validated en route care gaps for future large scale combat operations. He and his team contributed substantially to the operational and strategic evacuation planning module of the Joint Medical Planners Took Kit, the official medical planning application for future conflict, in cooperation with the Naval Health Research Center and Army Medical Center of Excellence.

Furthermore, he serves as an Emergency Medicine (EM) attending at Brooke Army Medical Center (BAMC), mentoring and overseeing academic and clinical training for 64 EM residents. Lastly, Maj Davis has published 16 manuscripts and presented at 34 prestigious conferences internationally disseminating military relevant research findings and securing collaborative partners across the globe.

59 Medical Wing, Office of the Chief Scientist hosted Brig Gen Swanson, AMC Command Surgeon on 3 March 2025 to provide her an on the ground immersion into the 59 MDW/ST mission and give her a better understanding of its impact on en route care. Brig Gen Swanson has responsibility for the En Route Care mission set, this will allow us a chance to showcase research projects and help her to advocate/support in whatever capacity she is able.



Maj William Davis receives coin from Brig Gen Swanson, AMC CC on 3 March during visit. Also receiving a coin is Maj Amber Hadjis, MEDCOM BAMC.



Maj Davis received coin from presented Col Maddy, BAMC DCI on behalf of Col Stackle, BAMC CC on 26 Mar 25. Also in the picture is Maj Nina Hoskins, 59 MDW/STN.

Maj Davis received a coin from BG Swanson, AMC Command Surgeon during a site visit in Mar, and received a coin from COL Stackle, BAMC CC, presented by Col Joe Maddy, Chief, BAMC DCI and former Director, ECRC.

Maj. Davis demonstrated the association between nontechnical skills, cognitive load, and technical performance in simulated en route critical care missions, research likely complemented by studies measuring team cognitive load through physiological synchronization during similar high-volume simulations.

This research employs a combined approach to dissect how team dynamics and mental workload affect performance in critical care situations. By objectively measuring cognitive load using physiological indicators, the study aims to move beyond subjective assessments and gain a more precise understanding of the relationship between cognitive strain, team coordination, and performance outcomes. The anticipated result is the development of more effective training programs and real-time monitoring systems that can enhance team effectiveness, mitigate errors, and ultimately improve patient safety and outcomes in demanding medical environments.

Congratulations to Maj. Davis on receiving this well-deserved recognition! These coins, awarded by esteemed leaders like BG Swanson and COL Stackle, are a powerful testament to Maj. Davis's unwavering hard work, dedication, and significant contributions to the field.

They symbolize not only individual achievement but also the positive impact Maj. Davis has made on their colleagues, the institution, and ultimately, the advancement of medical care. This honor reflects a commitment to excellence that is truly commendable.

Honors and Recognition

Welcoming Major Kathryn “Katie” Capple to Nursing Research

Author: Maj Nina Hoskin



We're thrilled to welcome Major Kathryn "Katie" Capple to the 59th Medical Wing, Science and Technology team at Joint Base San Antonio, Lackland! Major Capple joins us as our new Nurse Scientist, bringing a wealth of experience and a passion for improving patient outcomes.

Born and raised in Broadview Heights, Ohio, Major Capple earned her Bachelor of Science in Nursing (BSN) from Kent State University in 2013. She began her Air Force career as a staff nurse at Brook Army Medical Center (BAMC) and has since served in roles ranging from medical-surgical nurse to Executive Officer and Senior Health Care Integrator. Her dedication to service has taken her to Afghanistan (2016) at Craig Joint Theater Hospital and in support of Operation Allies Refuge (OAR) and the COVID-19

pandemic response (2021).

Major Capple's dedication to continuous learning culminated in a PhD in Nursing Science from the Uniformed Services University (USU) in May 2025, following a master's degree in public health also from USU. Her doctoral research focuses on the effects of alpha-linolenic acid on mTBI-induced PTSD, demonstrating her expertise in population health, health promotion, chronic disease prevention and management, lifestyle medicine, and sex-related differences in response to traumatic injury.



Beyond her professional accomplishments, Major Capple is a devoted wife to her husband of 12 years, and a loving mother to their son. The Capple family also includes Moose, their 10-year-old black lab mix. In her free time, Major Capple enjoys running, crocheting, and spending time outdoors.

We are incredibly excited to welcome Major Capple to our team and eagerly anticipate the valuable contributions she will bring to the 59th Medical Wing! Her expertise, skills, and dedication will undoubtedly strengthen our capabilities and enhance our ability to provide exceptional medical care.

We are confident that Major Capple will quickly become an integral part of our team, and we look forward to collaborating with her to achieve our shared goals and advance the mission of the 59th Medical Wing. Welcome aboard!

Honors and Recognition

59th MDW Recognizes Civilian Excellence with Annual Awards

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

The 59th Medical Wing (MDW) recently celebrated the dedication and outstanding contributions of its civilian workforce with the presentation of the 59MDW/CC Year Award for Civilians 2025. The ceremony, held to honor years of service and commitment to the Wing's mission, featured the presentation of certificates and commemorative coins by Col Keye S. Latimer, 59th Medical Wing Chief of Staff, to deserving individuals.



The Clinical Investigations and Research Support (CIRS) recognized several long-standing members for their unwavering dedication to advancing medical knowledge and patient care through research. Mr. Kenny DelValle and Mr. Leonicio Longoria were honored for their 15 years of dedication. Mr. Clay G. Huddleston reached the impressive milestone of 20 years.

The recent award ceremony served as a powerful testament to the indispensable contributions of civilian employees to the overall mission success of the 59th Medical Wing (MDW). Often working behind the scenes, these dedicated professionals are the backbone of the Wing, enabling it to deliver world-class medical care and maintain a high level of readiness for our nation's military. From supporting groundbreaking research initiatives that push the boundaries of medical science to meticulously maintaining and upgrading essential technology that underpins clinical operations, their impact is far-reaching and deeply felt.

The Science and Technology category highlighted the contributions of individuals who are vital to maintaining the technological edge and operational efficiency of the Medical Wing. Dr. Scott F Walter, Dr. Alexander J Burdette, and Dr. Carlton C Brinkley Jr. received awards for their 5 years of service, demonstrating their commitment to innovation and technical excellence.



Civilian employees within the 59th MDW bring a diverse range of skills and expertise. They are the researchers conducting vital studies to improve treatment protocols, the technicians ensuring complex medical equipment functions flawlessly, the administrators streamlining processes to enhance patient care, the logisticians managing critical supply chains, and the specialists providing crucial support in areas

like finance, human resources, and information technology.

Their expertise allows uniformed medical personnel to focus on direct patient care and operational duties, knowing that these critical support functions are being handled with professionalism and dedication. The Wing's ability to innovate, adapt to evolving challenges, and maintain its position as a leading medical institution is inextricably linked to the skills and dedication of its civilian workforce.

Continues..

Honors and Recognition



Mr. Daniel Travis Seller received recognition for an exceptional 25 years of service. Their collective expertise and commitment have been instrumental in supporting groundbreaking research initiatives within the 59th MDW.



A true testament to long-term dedication, Mrs. Alice Houy was celebrated for her 25 years of service. Her extensive experience and expertise have been invaluable in ensuring the 59th MDW remains at the forefront of medical technology.

The 59th MDW extends its heartfelt congratulations to all the award recipients on their well-deserved recognition. These individuals have consistently demonstrated exceptional performance, unwavering commitment, and a dedication to excellence that sets a high standard for all. The Wing also expresses its sincere gratitude to all its civilian employees for their years of dedicated service.

Their contributions, often unseen but always essential, are the foundation upon which the 59th MDW builds its reputation for excellence. Their commitment to providing exceptional support and service serves as an inspiration to all members of the 59th MDW, both civilian and military, and reinforces the importance of teamwork in achieving the Wing's vital mission.

They are truly valued members of the 59th MDW family.

Honors and Recognition

Dr. Rebecca Heyne: Advancing Evidence-Based Practice Across the Defense Health Agency

Author: Maj Nina Hoskin



Dr. Rebecca Heyne

Dr. Rebecca Heyne currently serves as the Evidence-Based Practice (EBP) Facilitator for the TriService Nursing Research Program (TSNRP), stationed at Lackland Air Force Base (AFB) in San Antonio, Texas. In this role, Dr. Heyne provides essential EBP support and mentorship across the Central and Continental regions of the Defense Health Agency (DHA), contributing to the advancement of military nursing practice through rigorous integration of research and evidence.

Dr. Heyne's academic background is both comprehensive and multidisciplinary. She earned her Bachelor of Science in Nursing (BSN) and Master of Science in Nursing (MSN) from the University of Akron. She further pursued specialized education and executive leadership studies, obtaining a Post-Master's Certificate in Nursing Education and a Healthcare Executive Master of Business Administration (MBA) from Kent State University. Additionally, she completed a Master of Public Health (MPH) from Chamberlain University, a Doctor of Nursing Practice (DNP) from Chatham University, and a Doctor of Philosophy (PhD) in Education from Capella University. This diverse educational foundation informs her expertise

in clinical and academic settings, positioning her as a key leader and facilitator within the DHA nursing community.

Dr. Heyne, a TSNRP EBP Facilitator, provides comprehensive mentorship, coaching, and training to military nurses and leaders throughout the EBP process. Her support encompasses guiding funding applications, identifying key clinical issues, developing focused PICO(T) questions, conducting evidence searches, fostering interprofessional teamwork, establishing EBP councils, reviewing literature, selecting relevant measures, and supporting data analysis for implementation outcomes.

Dr. Heyne actively disseminates EBP findings through posters, presentations, and peer-reviewed publications. She is also involved in numerous impactful EBP initiatives across military treatment facilities, addressing critical areas like implementing alternative pain management, enhancing blood administration education within Tactical Combat Casualty Care, developing pediatric trauma blood administration protocols, designing on-demand neonatal resuscitation programs, supporting cardiac surgical advanced life support education, establishing enhanced support programs for expectant fathers, and launching an evidence-based developmental support program for pediatric patients with sickle cell disease, focusing on psychosocial and cognitive milestones.

These initiatives demonstrate Dr. Heyne's commitment to using research and evidence to drive improved clinical outcomes, professional development, and system-level transformation within military nursing practice. Her leadership as an EBP facilitator is critical in ensuring that nursing interventions across the DHA are clinically sound, scientifically validated, and operationally relevant.

For more information regarding evidence-based practice or to request a consult please contact Dr. Rebecca Heyne at rebecca.e.heyne.ctr@health.mil or submit a consult request via the TSNRP website <https://www.triservicenurse.org/request-ebp-facilitator>

Achievements Spotlight

Honors and Recognition

Discovering Careers in Infectious Disease: A Look at Civilian and Military Opportunities

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



As part of a recent educational outreach initiative, Dr. Jesus Silvas from the 59 MDW/ST Office of Research and Technology Applications (ORTA) joined forces with Dr. Israel Guerrero from the Texas Biomedical Research Institute, to provide students from the Mendez Elementary School in grades 2 through 5 with an engaging and informative experience centered on careers in infectious disease research and biosafety practices.

The event showcased how a Ph.D. in infectious disease can lead to impactful careers in both civilian and military sectors.

Dr. Guerrero-Arguero is a virologist at Texas Biomedical Research Institute, where they study high-consequence viruses like chikungunya, Ebola, and Marburg in high- and maximum-containment laboratories. As part of the Applied Science and Innovation (ASI) team, Dr. Guerrero-Arguero contributes to contract research studies for private companies and public institutions, testing vaccines and therapeutics designed to stop these deadly pathogens. Their work bridges cutting-edge science and real-world solutions, supporting the global effort to develop medical countermeasures and improve pandemic preparedness.



CPT Jesus Silvas, PhD is a microbiologist at the US Army Reserve Medical Command (USARMEDCOM), 7450th MORU, with an extensive background in biocontainment, molecular virology, immunology, and vaccine development. Currently, CPT Silvas is a Defense Health Agency Contractor through ASI/ABSS assigned to the 59 MDW/ST Office of Research and Technology Applications (ORTA).

The joint presentation included a hands-on demonstration of the four levels of biocontainment. These levels are essential safety protocols for working with infectious agents of varying risk. The event highlighted two critical pieces of biosafety equipment: the Honeywell Biosafety Level 4 (BL-4) Positive Pressure Suit and the HALO respirator used in Biosafety Level 3 (BL-3) environments. These visual aids helped young students understand the seriousness and complexity of working with infectious pathogens.

Continues...

Honors and Recognition



To deepen the students' understanding, one student from each class was selected to wear the BL-4 Positive Pressure Suit and walk around in it. This interactive approach allowed students to semi-experience what it feels like to be inside the fully enclosed suit, which is typically used by scientists working in high-risk containment facilities.

The outreach session also focused on educating students about the importance of disease prevention. Presenters discussed simple yet effective measures to help prevent the spread of infectious diseases, emphasizing the role of hygiene, vaccination, and personal responsibility in public health.

Dr. Silvas and Dr. Guerrero made a lasting impression on young learners by connecting advanced scientific practices with real-world career paths and providing tangible, age-appropriate demonstrations.

Their collaborative efforts inspired curiosity about science while reinforcing the significance of infectious disease research in protecting civilian populations and military personnel.

This outreach program transcends the limitations of a mere educational initiative, positioning itself as a strategic investment in the future of public health and biosciences. By proactively nurturing nascent interests and providing invaluable opportunities for exploration, it assumes a pivotal role in cultivating the next generation of dedicated scientists, compassionate clinicians, and groundbreaking researchers.

These individuals, equipped with a passion ignited early on, will be the very architects of future advancements, shaping the landscape of public health and biosciences with their innovative thinking and tireless dedication. Ultimately, this program represents a proactive and forward-thinking approach to building a more robust, diverse, and exceptionally innovative workforce – a workforce resolutely committed to the overarching goal of improving human health and well-being on a global scale. Through early engagement and experiential learning, this program ensures a future where public health and biosciences are driven by passionate, skilled, and representative individuals dedicated to solving the complex challenges facing humanity.

The 59th Medical Wing (MDW) is incredibly proud to champion initiatives like this, fostering a nurturing environment where young minds can discover the fascinating world of medical innovation and public service. We believe that by investing in these early learning opportunities, we are not only cultivating future leaders in STEM fields but also instilling a deep appreciation for the critical role of public health in our community and beyond. The 59th MDW is honored to contribute to shaping a brighter, healthier future by sparking this vital interest in the next generation.

Honors and Recognition

Dr. Lauren Cornell Inspires Future Biomedical Engineers at UTSA Graduation

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



Dr. Lauren Cornell, General Health Science Officer and Lead Scientist for Diagnostics and Therapeutics at the 59th Medical Wing (59MDW), served as the Keynote Graduation Speaker for the University of Texas at San Antonio (UTSA) Biomedical Engineering Department on May 15th. The address, delivered to a graduating class poised to enter a rapidly evolving field, offered insights, encouragement, and a challenge to the next generation of biomedical engineers.

The commencement ceremony, celebrated the achievements of students who have dedicated years to mastering the complexities of biomedical engineering. Dr. Cornell's presence as the keynote speaker, given her prominent role in health science and cutting-edge diagnostics and therapeutics at the 59MDW, was a testament to the department's commitment to providing its students with access to prominent figures who are shaping the future of healthcare and technology.

In her address, Dr. Cornell emphasized the importance of interdisciplinary collaboration, highlighted the ethical considerations of emerging technologies, and shared personal anecdotes about navigating a career in biomedical engineering. Drawing upon her own experiences and expertise, particularly her work in diagnostics and therapeutics, Dr. Cornell offered valuable advice on navigating the challenges and opportunities that lie ahead for the graduating class.

The speech likely touched upon the critical role biomedical engineers play in developing innovative solutions to address pressing healthcare needs. From designing advanced prosthetics and medical imaging devices to engineering novel therapies and regenerative medicine techniques, biomedical engineers are at the forefront of transforming patient care and improving the quality of life for millions.

Dr. Cornell's address served as a powerful reminder of the impact these graduates can have on the world. By encouraging them to embrace innovation, pursue lifelong learning, and remain committed to ethical practices, the speech aimed to inspire the graduating class to become leaders in their field and make a meaningful contribution to society.

The UTSA Biomedical Engineering Department's selection of Dr. Cornell as the keynote speaker reflects its dedication to providing students with a comprehensive education that extends beyond the classroom. By connecting students with successful professionals and thought leaders like Dr. Cornell, who are actively shaping the landscape of medical technology and patient care, the department strives to prepare them for fulfilling and impactful careers in biomedical engineering. The graduation ceremony, capped by Dr. Cornell's inspiring address, marked a significant milestone in the lives of these graduating students as they embark on their journey to shape the future of healthcare.

Honors and Recognition

59th MDW Scientist Highlights Precision Medicine in Anesthesia

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



Dr. Tarjani N. Shukla, a leading scientist from the 59th Medical Wing (MDW) Science & Technology, Chief Scientist Office, recently presented a compelling overview of precision medicine applications in the field of chronic pain at the University of New Mexico (UNM) Department of Anesthesia Research Seminar Series on May 9th. The seminar provided a valuable platform for Dr. Shukla to share her expertise and insights with a diverse audience of faculty, residents, and students.

The core of Dr. Shukla's presentation centered on the transformative potential of precision medicine to revolutionize chronic pain management and novel therapeutics. Precision medicine, also known as personalized medicine, shifts the focus

from a generalized, one-size-fits-all approach to healthcare towards tailoring treatments based on the unique characteristics of each individual. Dr. Shukla elucidated how factors such as genetics, biomarkers, and other individual patient attributes can be leveraged to optimize pain management and medication choices.

The presentation delved into the practical implications of precision medicine within the context of pain chronification. By understanding a patient's genetic makeup, for example, we can better predict their response to specific therapeutics, minimizing the risk of adverse reactions and maximizing efficacy. Biomarkers, measurable indicators of a patient's physiological state, can also be used to personalize pain management, allowing for more precise titration of medications and closer monitoring of patient responses.

Dr. Shukla's presentation sparked a lively and engaging discussion among the attendees. The audience actively participated in exploring the scientific and practical considerations surrounding the implementation of precision medicine in chronic pain management. The conversation highlighted the excitement surrounding the potential of personalized approaches to improve patient safety, reduce complications, and enhance long-term outcomes.

The dissemination of Dr. Shukla's research and expertise through the UNM seminar series underscores the 59th MDW's commitment to advancing medical knowledge and promoting innovative approaches to patient care. By sharing cutting-edge research findings with the broader medical community, the 59th MDW Science & Technology, Chief Scientist Office, plays a crucial role in shaping the future of military medicine and contributing to advancements in civilian healthcare.

Dr. Shukla's presentation served as a catalyst for further exploration and collaboration in the field of precision medicine, paving the way for improved patient care and enhanced medical outcomes for Service members and the general population.

Honors and Recognition

Addressing Aviation Mental Wellness: LTC Raus's Research Fellowship at the 59th MDW

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



The 59th Medical Wing Chief Scientist's Office benefited from the expertise of Lieutenant Colonel Aric Raus, a distinguished US Army Aviation Officer, who completed an interagency Army Skillbridge Warrior Transition Program research Fellowship. From February to June 2025, Lieutenant Colonel Raus collaborated with the Department of Joint Integrated Clinical Medicine within the 59th Medical Wing Office of Science and Technology, dedicating his efforts to a vital area of research: the mental wellness of aviation personnel.

His work delved into the multifaceted challenges faced by these individuals, including identifying and understanding the barriers that hindered them from seeking necessary mental health care, evaluating the acceptability and effectiveness of non-clinical mental health techniques, and exploring strategies for seamlessly integrating mental health considerations into the safety management systems that govern aviation operations, ultimately aiming to improve the overall well-being and operational readiness of aviation personnel.

He holds a PhD in Industrial-Organizational Psychology, an MS in Administration and Leadership, and a BS in Aeronautical Science. LTC Raus is the only Active-Duty military Associate Professor at the Command and General Staff College and was recently named Military Educator of the Year by the College's Department of Command and Leadership.

With over 25 years in the US Army, LTC Raus' career includes a blend of cross-cultural leadership, aviation operations, and organizational psychology. He has commanded aviation units during peacekeeping and combat operations, trained US and international military staffs, served as an interagency liaison between US Africa Command and USAID, and currently teaches organizational development for the US Army. LTC Raus is a frequent presenter at aviation conferences, discussing the prevalence of self-described mental health symptoms and barriers to care among US Army aircrews, ATC personnel, and RPA operators. He recently presented at the European Association of Aviation Psychology and the Aerospace Medical Association.

Beginning his aviation journey learning to fly in J-3 Piper Cubs, LTC Raus is a UH-60 Pilot in Command and Maintenance Test Pilot with deep experience in aviation operations, maintenance, and logistics. He holds a civilian fixed-wing commercial pilot certificate, flight instructor rating, and is pursuing his commercial glider license. LTC Raus and his wife spend their "off-time" keeping up with their son's sports and daughter's choir schedules, along with volunteering with the Civil Air Patrol.

Clinical Trials Day at Wilford Hall: Celebrating Research and Innovation

Author: Raquel L. Lopez



The 59MDW HRPP and Protocol Office Ladies

"Every cure we celebrate today began in a clinical trial. Behind each are countless hours of science, care, and the courage of participants."

Celebrating Clinical Trials Day at Wilford Hall

On May 20, 2025, the 59th Medical Wing's Clinical Investigations and Research Support (CIRS) department—home to the Human Research Protections Program (HRPP) and Protocol Office—proudly hosted a celebration in honor of Clinical Trials Day at Wilford Hall Ambulatory Surgical Center.

This annual observance marks a pivotal moment in medical history. On this date in 1747, Scottish physician James Lind conducted what is widely recognized as one of the first controlled clinical trials aboard a

British naval ship. His research and treatments for scurvy ultimately demonstrated the effectiveness of citrus fruits, laying the foundation for the clinical research methods we rely on today.

Clinical Trials Day is a nationwide opportunity to recognize the essential role of clinical research in advancing medical knowledge and improving health outcomes. It also serves to acknowledge the invaluable contributions of clinical investigators, research staff, participants, and support teams who make this work possible.

To mark the occasion, the CIRS team created this event to show our appreciation to research staff and participants, as well as provide a welcoming space for attendees to learn more about clinical research, ask questions, and explore opportunities to participate in or support future studies.

The 59MDW CIRS team is proud to support a culture of ethical and innovative research and thanks all who contribute to this vital mission!



ATTENTION INVENTORS AND INNOVATORS!

Do you have any questions on the following topics:

- What is Intellectual Property (IP)?
- How can IP be secured?
- What are the benefits of securing IP?
- What about IP arising from Cooperative Research and Development Agreements (CRADAs) or collaborations?
- I think I have developed an invention or a knowledge product, what should I do next?

The DHA will assist and fund patent filings for inventions and products that support the operational mission. Knowledge-based products such as protocols, processes, and training programs can also be licensed!

To learn more, and to engage a technology transfer specialist, please contact the Office of Research and Technology Applications (ORTA) by emailing usaf.jbsa.59-mdw.mbx.59-mdw-st-orta@health.mil or beth.e.drees.ctr@health.mil.

Learn Grants: Check out this link to the Grants Learning Center: <https://www.grants.gov/learn-grants.html>.

FUNDING ANNOUNCEMENTS

Those who intend to submit to any of these funding opportunities are to contact the ST office at 210-292-2097 or usaf.jbsa.59-mdw.mbx.59-mdw-st@health.mil for assistance. Documents requiring 59 MDW/ST review, must be submitted NLT 10 business days prior to the submission deadline.

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>.

Below are the FY25 Pre-announcements available for consideration:

- Amyotrophic Lateral Sclerosis Research Program, <https://cdmrp.health.mil/pubs/press/2025/25alsrppreann>
- Autism Research Program, <https://cdmrp.health.mil/pubs/press/2025/25arppreann>
- Breast Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2025/25bcrrppreann>
- Epilepsy Research Program, <https://cdmrp.health.mil/pubs/press/2025/25erppreann>
- Hearing Restoration Research Program, <https://cdmrp.health.mil/pubs/press/2025/25hrppreann>
- Joint Warfighter Medical Research Program, <https://cdmrp.health.mil/pubs/press/2025/25jwmrppreann>
- Lung Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2025/25lcrppreann>
- Lupus Research Program, <https://cdmrp.health.mil/pubs/press/2025/25lrppreann>
- Melanoma Research Program, <https://cdmrp.health.mil/pubs/press/2025/25mrppreann>
- Ovarian Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2025/25ocrppreann>
- Parkinson's Research Program, <https://cdmrp.health.mil/pubs/press/2025/25prppreann>
- Peer Reviewed Alzheimer's Research Program, <https://cdmrp.health.mil/pubs/press/2025/25prarppreann>
- Peer Reviewed Cancer Research Program, <https://cdmrp.health.mil/pubs/press/2025/25pcrppreann>
- Spinal Cord Injury Research Program, <https://cdmrp.health.mil/pubs/press/2025/25scirppreann>
- Traumatic Brain Injury and Psychological Health Research Program, <https://cdmrp.health.mil/pubs/press/2025/25tbiphrppreann>
- Tuberous Sclerosis Complex Research Program, <https://cdmrp.health.mil/pubs/press/2025/25tsrppreann>
- Vision Research Program (VRP), <https://cdmrp.health.mil/pubs/press/2025/25vrppreann>

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

Defense Advanced Research Projects Agency (DARPA), Biotechnologies Office (BTO): BTO's mission is to develop capabilities that leverage the unique properties of biology adaption, 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: HR001123S0045 at <http://www.grants.gov/>.

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://www.mtec-sc.org/upcoming-solicitations/>.

Science and Technology Contact Information



Our Vision

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

Our Mission

Conduct clinical studies and translational research and apply knowledge gained to enhance performance, protect the force, and advance medical care and capabilities

Points of Contact

Chief Scientist's Office
Science and Technology
59th Medical Wing
1632 Nellis Street, Bldg. 5406,

JBSA-Lackland TX 78236
Admin Support (292-2097)
Senior Program Analyst (292-2761)
Senior Scientist (292-3513)
Clinical Investigations/CIRS (292-7068)
Area Code: 210; DSN: 554

ST email: usaf.jbsa.59-mdw.mbx.59-mdw-st@health.mil

Kx site: <https://kx.health.mil/kj/kx8/59MDWScienceAndTechnology/Pages/home.aspx>

Public site: <https://wilfordhall.tricare.mil/About-Us/Research-and-Education/59-MDW-Chief-Scientists-Office-Science-and-Technology>

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