Uniformed Services University School of Medicine 2024 Annual Report



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DEAN'S MESSAGE



2024 was a true milestone year for the School of Medicine. The year opened with a site visit from the Liaison Committee on Medical Education (LCME), leading to our successful re-accreditation as a medical school for the full eight-year accreditation period. Additionally, for a fourth straight year, we outscored **all other medical schools** on the annual Association of American Medical Colleges Graduation Questionnaire (AAMC GQ). The Class of 2025 achieved an 88 percent match to first specialty rate, and 2024 GME graduates in the National Capital Consortium (NCC) achieved a **96.5 percent first time pass rate on Board certification exams**. And our graduate students published peer-reviewed research, received

prestigious grants and awards, and delivered invited presentations and talks around the world.

School of Medicine programs and Centers observed milestone anniversaries throughout the year, with the Val G Hemming Simulation Center celebrating 25 years, the Gynecologic Cancer Center of Excellence (GYN-COE) observing its 20-year anniversary, the Trauma Infectious Disease Outcomes Study (TIDOS) marking 15 years of clinical research on battlefield-related wound infections, and the Enlisted to Medical Degree Preparatory Program (EMDP2) finishing a very successful first decade.

Meanwhile, future-focused initiatives including the newly established Department of Health Professions Education and the USU Academic Research Cloud (ARC) are positioning the School of Medicine to strengthen its leadership in military medicine, teaching, and scholarship. Thanks to the Center for Health Professions Education (CHPE), USU is already an established national and international leader in Health Professions Education. The new Department will be a focal point for educational research and innovation and will lead expansion of the new USU Education and Simulation Hub. The ARC, a cloud environment that will allow users at any experience level to build and use research applications, will streamline research computing at the School of Medicine with cloud workstations, sandbox cloud environments, and custom cloud deployments.

New initiatives aside, we remained - and remain - dedicated to the three components of our core mission:

- 1. We produce military physician-leaders who drive innovation in academia and federal service
- 2. We are the focal point for military medical education and training at every stage of the career lifecycle
- 3. We serve as the nexus of biomedical science, health services research, and innovation for the MHS

This Annual Report features the School of Medicine's 2024 highlights in research and innovation, teaching and learning, and leadership and service. Amid ever-changing challenges and threats at home and abroad, the School of Medicine remains a vital asset to military medicine, biomedical science, and our national security.

Eric Elster, MD, FACS, FRCS Eng (Hon.) CAPT, MC, USN (Ret.) Dean, School of Medicine USU Executive Vice President for Medical Affairs Professor of Surgery Professor of Molecular and Cell Biology

2024: YEAR AT A GLANCE



A YEAR OF MILESTONES

Major educational and research programs observed milestone anniversaries in 2024, celebrating a combined 70 years of accomplishments in medical education and cancer and infectious disease research.



Sim Center 25th anniversary celebration, September 2024. Front, I to r: Dr. Joseph Lopreiato, Dr. Eric Elster, Dr. Val Hemmings, Dr. Carol Romano, Dr. Patrick Monahan, Dr. Joseph Carvalho.

Founded in 1999, the Val G. Hemming Simulation Center (Sim Center) marked its 25th anniversary in September 2024. Led by Director and Associate Dean for Simulation Education Dr. Patrick Monahan and Assistant Dean for Simulation Dr. Joseph Lopreiato, the Sim Center was the "brainchild" of former School of Medicine Dean Dr. Val Hemming and former Associate Dean for Clinical Affairs Dr. Emmanuel Cassimatis, who believed that simulation, a then-novel idea in medical education, could be an effective teaching tool. With support from then-President Dr. James Zimble, the University established the center in September 1999, using 8,000 square feet of space in the old "four seasons" garden shop at the Forest Glen Annex military exchange. It was renamed in honor of

Ten years of EMDP2



EMDP2 Cohort 11 orientation, July 2024. Photo: ENS Christopher Snider (USU medical student and EMDP2 Cohort 8 graduate)

On 17 December 2014, representatives of the Army, Navy, Air Force, and Uniformed Services University signed a proclamation establishing the Enlisted to Medical Degree Preparatory Program (EMDP2). EMDP2 offers a structured, two-year preparatory course, via a partnership between USU and George Mason University, which allows talented enlisted military members to complete undergraduate medical school prerequisites and prepare for the Medical College Admissions Test (MCAT). Upon successful completion of the program, students commission as officers in their respective services, and enter medical school at USU or at a civilian institution. Since 2014, there have been 188 EMDP2 matriculants, with 161 program graduates admitted to medical school, and 57 physician graduates. Thanks to EMDP2,

Dr. Hemming in 2012. In addition to teaching,	the percentage of prior enlisted students
the Sim Center is also a research hub, with 112	graduating from the School of Medicine nearly
peer-reviewed publications since 2004, and over	doubled in 10 years - from 6% of the Class of
\$28 million in grant funding.	2014 to 11% of the Class of 2024.
Read more: "USU Simulation Center Marks 25	Read more: "USU Enlisted-to-Physician Program
Years of Innovation and Excellence"	Celebrates 10-Year Milestone"
https://bit.ly/3ZT7Ejw	https://bit.ly/3By0lk1

Two decades of innovation: The GYN-COE



Photo: Gloria Montgomery, CRDAMC Public Affairs

In 2004, the original Walter Reed Army Medical Center established the Gynecologic Disease Center. The Center was reimagined in 2010 as the Gynecologic Cancer Center of Excellence (GYN-COE) as a component of the Murtha Cancer Center Research Program (MCCRP). GYN-COE provides critical expertise to MCCRP's APOLLO (Applied Proteogenomics Organizational Learning and Outcomes) Program. 2024 marked the Center's "20-year journey of pioneering research, collaboration, and commitment to advancing women's health and military readiness."

Read more: "GYN-COE's 20-Year Journey of Innovation and Impact" <u>https://bit.ly/4gnOTvM</u>

Trauma Infectious Disease Outcomes Study (TIDOS)

COMES S

FECTIOUS

TIDOS celebrates 15 years

Led by Dr. David Tribble, the Trauma Infectious Disease Outcomes Study (TIDOS) studies wound infections by systematically collecting information on medical and surgical management, microbiology, and infectious outcomes of wounds sustained by deployed military personnel. TIDOS accomplishments include development of the DoD Trauma Registry Infectious Disease Module, contributions to Joint Trauma System (JTS) practice guidelines for management of combat trauma-related infections, and research leadership on invasive fungal wound infections (IFI). Thanks to TIDOS research, the Military Health System has vastly improved its understanding of combat-related wound microbiology and the long-term impact of combat trauma on wounded warriors. New TIDOS initiatives focus on wartime preparedness to enhance DoD capabilities in the prevention and management of wound infections in future conflicts.

Read more: https://bit.ly/41Nn4Zd

ACADEMIC HIGHLIGHTS

UNDERGRADUATE MEDICAL EDUCATION

2024's LCME accreditation highlighted a year of academic excellence for the School of Medicine. In July, we were notified of our re-accreditation through the 2031 - 2032 academic year, the full eight-year accreditation period. Associate Dean for Medical Education **Dr. Catherine Witkop** led and managed the process, which began in August 2022 and ended in January 2024 with a three-day LCME site visit. The survey team's exit report listed only six findings, vs. the typical 11-14 findings for accredited medical schools.

LCME accreditation represents assurance - to the public, government agencies, and professional organizations - that the USU School of Medicine meets or exceeds

97.8%

On the annual AAMC Graduation Questionnaire, **97.8%** of USU Class of 2024 medical students **AGREE** or **STRONGLY AGREE** with the statement "Overall, I am satisfied with the quality of my medical education," compared to **89.9%** of all students in US medical schools.

nationally accepted standards regarding curriculum, education, and student performance. Thanks to the hard work of Dr. Witkop and her team, as well as the support of faculty, staff, and students, we are now positioned for continued success in all of our mission domains - education, research, and service to the Nation - until 2032.



Waiting for the envelope: Class of 2025 medical students, Match Day, December 2024

Students also give high ratings for their medical school experience. On the annual AAMC Graduation Questionnaire, **97.8%** of USU Class of 2024 medical students **AGREE** or **STRONGLY AGREE** with the statement "Overall, I am satisfied with the quality of my medical education," compared to **89.9%** of all students in US medical schools. This was the fourth consecutive year (2021, 2022, 2023, 2024) in which USU outscored other surveyed medical schools.

Our students also achieved remarkable success in 2024, with **88 percent of Class of 2025 medical students** matching to their top specialty choice. The top ten specialties were General Surgery, Family Medicine, Internal Medicine, Emergency Medicine, Orthopedic Surgery, Pediatrics, Psychiatry, Anesthesiology, ENT Surgery, and Radiology. When the Class of 2025 begins graduate medical education in August, the majority of the 177 graduates will be entering the Military Health System's most in-demand specialties. "Ready, Set, Heal" - video refresher course for incoming medical students. Welcoming the Class of 2028, the Office of Medical Education led by Associate Dean Dr. Arnyce Pock launched the "Ready, Set, Heal!" video series. Designed to help incoming medical students "hit the ground running," this self-paced course provides a concise review of core basic science concepts. The inaugural series of four video lectures, available on the USU YouTube channel, features Dr. Thomas Flagg, Dr. Rachel Cox, Dr. Saibal Dey, Dr. Guinevere Granite, and Dr. Maria Ximena Leighton.

Admissions launches Early Decision program. The incoming Class of 2029 will include the first group of applicants under the School of Medicine's newly established Early Decision program. During the first Early Decision cycle, the School of Medicine received 59 Early Decision applications, with 37 applicants interviewed and 30 accepted for admission (8 Air Force; 10 Army; 2 Coast Guard and 10 Navy).

GRADUATE MEDICAL EDUCATION

Led by **Dr. Jerri Curtis** (CAPT, Navy MC, retired), the <u>National Capital Consortium (NCC)</u> for graduate medical education (GME) programs in the National Capital Region (Maryland, Northern Virginia, and the District of Columbia) added **256** *new doctors* to the MHS workforce and achieved a remarkable 96.5 percent first-time pass rate on Board examinations. Especially noteworthy was the Walter Reed/ USU surgical residency program, which achieved **100 percent pass rates for both Qualifying and Certifying exams for three consecutive years**. NCC's 256 2024 graduates are now caring for service members, veterans, and families at duty stations around the world.



The National Capital Consortium also achieved remarkable scholarly success in AY 2023 - 2024. NCC faculty published 894 articles in peer-reviewed journals, and over 300 commentary and review articles. Trainees published over 400 peer-reviewed articles and contributed to 38 textbook chapters. Faculty and trainees also presented at hundreds of conferences in the US and around the world.



NCC graduation day, June 2024

GRADUATE EDUCATION

In AY 2023 - 2024, 70 Master's and PhD graduates contributed to over 90 peer-reviewed publications and delivered over 50 invited presentations and talks. Graduate students also received prestigious awards and grants, including the NIH Fellows Award for Research Excellence (FARE), the APA Division 19 Student Research Award, Society for Neuroscience Fellowship, Wiseman Medal, and more.

The new **Department of Health Professions Education (HPE)**, established in May, solidified our international reputation in Health Professions Education, under the leadership of Department Chair **Dr. Steven Durning**, who has been the principal or associate investigator on educational grants totaling more than \$11M and has received more than 50 national and international awards for his work in HPE.

100% of Medical and Clinical Psychology (MPS) program (**Dr. Tracy Sbrocco**, Program Director) graduates matched or were accepted to APA-accredited internships programs. Additionally, 2016 MPS graduate **LCDR Marcus VanSickle** was named Navy Senior Psychologist of the Year, having also been previously selected as Junior Psychologist of the Year in 2018.

In January, the American Society of Tropical Medicine and Hygiene announced the results of the CTropMed[®] Examination (Certificate in Tropical Medicine and Travelers Health); and for the **third straight year, 100% of USU MPH&TM students and faculty passed the examination**.

The Master of Health Administration and Policy (MHAP) led by **LCDR Christian Betancourt** competed successfully in prestigious public health case competitions (including first- and second-place teams in the George Washington University DMV Case Collaborative and a semi-finals finish at the University of Alabama Birmingham Health Administration Case Competition. **All seven** second-year MHAP students were inducted into the Upsilon Phi Delta (UPD) International Honor Society, an academic honor society for students in healthcare management, leadership, or administration programs.



L to R: CDR Beth Hawks, LCDR Christian Betancourt, ENS Britney Bessarab, ENS Charlcie Roman, ENS Norbert Owusu, MAJ Chad Beach, ENS Mecole Scott, ENS Torrence Watkins, ENS Ariel Galang, LCDR Kezia Edmonson, LCDR Nabil Tahan, UPD Honor Society induction, December 2024

MEDICAL STUDENT ACCOMPLISHMENTS

Medical students present research at American Academy of Dermatology Annual Meeting. Early in March, medical students **2LT Injae (Jason) Jung** and **2nd Lt Evan Mak** delivered research presentations at the American Academy of Dermatology Annual Meeting. 2LT Jung presented "Coldinduced Palmar Erythema and Dysesthesia Responsive to Botulinum Toxin Type A Injections" and 2d Lt Mak presented "A Pedunculated Tumor on the Chest of a Neonate."

Military and Emergency Medicine research on peer teaching during ACME includes a student author. In "Peer Teachers' Professional Identity Development During a Prehospital Simulation: A Grounded Theory Study" (Cole, Hildreth, Pickering, Rudinsky) MEM researchers (including medical student **ENS Robert Pickering**) demonstrated that simulation-based education is valuable not only for learners but for peer teachers as well.

Medical students present at 2024 SAGES Military Symposium. Joining CAPT Tamara Worlton, medical students 2LT Sharon Kim, 2LT Pranish Katwal, ENS Debrashee Mitra, and ENS Margaret (Molly) Shields, attended the annual Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) and delivered several presentations. ENS Mitra writes, "Being able to experience SAGES as a medical student has been an incredibly rewarding experience...the innovation, development, education and collaboration portrayed as well as the networking possible at this conference has been like nothing I've experienced before!"

ARMY STUDENTS EARN ARMY EXPERT MEDICAL FIELD BADGE



2d Lt Max Beerbaum

Class of 2024 medical students **2LT Olivia Agee**, **2LT Trey Nettles** and **2LT Perry Wiseman** received the <u>Army Expert</u> <u>Field Medical Badge</u>, a famously difficult distinction to earn.

"Service before self" - Air Force Medical student named a Pat Tillman Scholar. In June 2024, Air Force medical student 2d Lt Max Beerbaum was named a Pat Tillman Foundation Tillman Scholar. The Pat Tillman Scholarship program "identifies remarkable military service members, veterans and spouses, empowering them with academic scholarships, lifelong leadership development opportunities and a diverse, global community of high-performing mentors and peers." 2d Lt Beerbaum, a 2023 EMDP2 graduate and member of the Class of 2027, was an emergency medical technician, Air Force logistics specialist, and Ranger School graduate before entering the EMDP2 program in 2021. 2024 marks the second consecutive year in which a USU medical student was selected as a Tillman Scholar.

STUDY AND SERVICE: STUDENT OPERATIONAL EXPERIENCES



Left: Class of 2025 students take part in quarterly operational exercises aboard the USNS Mercy, December 2024. Upper right: Army medical student 2LT Christian Song completes Sabalauski Air Assault School as Distinguished Honor Graduate, August 2024. Lower right: Class of 2024 medical student 2LT Olivia Agee, with classmates 2LT Trey Nettles and 2LT Perry Wiseman received the Army Expert Field Medical Badge, April 2024.

Throughout 2024, USU military medical students participated in field exercises and attended training schools, gaining operational experience and earning badges and decorations.

MS4 wins Medical Service Corps design competition. Class of 2025 Army medical student **2LT Om Chitnis** created a challenge coin design that was selected as the winner of the Medical Service Corps annual design competition.

"Selflessness and compassion" - Army medical student donates lifesaving bone marrow. 2LT Jillian Walsh made the generous decision to donate bone marrow for a person in need, exemplifying military medical ideals of service and care.

Medical students attend international military medical student conference. Air Force medical student 2d Lt. Amanda Samuel and Navy student Ensign Colin McCarty attended the Annual Conference of the German Association of Military Medical Candidates in Munich, Germany, joining military medical students and physicians from the US, Germany, and other European allies.



2LT Jillian Walsh



2LT Brandon Hillery

Army and Air Force medical students earn top honors at Air Assault School. In August, Class of 2025 medical student 2LT Christian Song and Class of 2027 student 2d Lt Frank Lin completed Sabalauski Air Assault School as Distinguished Honor Graduates, earning their Air Assault badges as well as the traditional tomahawks awarded to Honor Graduates.

Medical students visit USNS Mercy. On September 23 and 24, medical students **ENS Sarah Fleisher** and **2LT William Hartter** participated in the MERCEX 24-4 pier side exercise at Naval Base San Diego, with an operational briefing and tour of USNS Mercy. ENS Fleisher and 2LT Hartter met with shipboard personnel, attended a journal club meeting with the CO in attendance, and observed Mercy operations first hand. Class of 2025 medical students also participated in exercises aboard the Mercy in December 2024.

AAMC video features Army medical student. The American Association of Medical Colleges selected Class of 2025 medical student **2LT Brandon Hillery** to appear in its medical student video series. In this video, 2LT Hillery tells the story of his journey from "I want to be a doctor when I grow up" to his 4th year of medical school at USU.

MS4 appointed to AOA Board of Directors. In November, Class of 2025 medical student **2d Lt William Brooks** was selected to serve as a Student Director for the national Alpha Omega Alpha (AOA) Honor Medical Society. 2d Lt Brooks is one of just a few student/resident representatives on the Board.

Class of 2028 medical student organizes 9/11 memorial ruck march. In September, Class of 2028 Army medical student and EMDP2 graduate **2LT Zachery Brown** organized a class ruck march to commemorate the 9/11 attacks on the United States. 2LT Brown writes that his goal for the event was "to honor the memory of the 3,000 lives lost that day—fathers, mothers, sons, daughters, first responders—and the nearly 7,000 military lives lost during 20 years of sustained combat operations in the Global War on Terrorism."



Class of 2028 honors 9/11 victims and military casualties in a memorial ruck march

GRADUATE STUDENT ACCOMPLISHMENTS

In 2024, USU graduate students received notable honors and awards, including:

- Laura Novak (MPS) received the APA Division 19 Student Research Award
- Mydirah Littlepage-Saunders (NES) was selected as a Society for Neuroscience Scholar
- Megan Parker (MPS) received the NIH Fellows Award for Research Excellence (FARE)
- **Simon Tallowin (MCB)** received the Wiseman Medal (Association of Defence General & Vascular Surgeons, London)



Clockwise from top left: Mydirah Littlepage-Saunders, Laura Novak, Simon Tallowin, Megan Parker

Department of Pharmacology PhD candidates publish research on cancer therapy resistance. PhD candidate **Nancy Sealover** and Class of 2024 MD/PhD candidate **ENS Patricia Theard** were first authors of two 2024 publications on acquired resistance to cancer therapies. Their advisor,



ENS (now LT) Patricia Theard and Nancy Sealover

Associate Professor **Dr. Robert Kortum** explains that acquired resistance limits the long-term effectiveness of cancer therapies, and identifying combination therapies that delay development of acquired resistance is key to effective treatment for patients. Ms. Sealover's article ("In situ modeling of acquired resistance to RTK/RAS pathway targeted therapies,"1 establishes a method to

assess acquired resistance to multiple targeted therapies. Dr. Theard's article ("<u>SOS2 modulates the</u> <u>threshold of EGFR signaling to regulate osimertinib efficacy and resistance in lung adenocarcinoma</u>²") uses a resistance assay to pinpoint SOS2 as a therapeutic target for *EGFR*-mutated lung adenocarcinoma, the most common type of lung cancer found in patients who have never smoked.

MPS graduate student presents at American Foundation for Suicide Prevention-sponsored Suicide Research Symposium. MPS graduate student **Andrew Ton** was the lead author and presenter of "Suicidal Ideation Disclosure Prior to Death Among U.S. Air Force Suicide Decedents, Calendar Year 2020" and "Examination of Suicidal Ideation Disclosure: Methodological Challenges in Estimating Prevalence and Understanding Contextual Details, Suicide Research Symposium" (Ton, LaCroix, Ekman, Button, Kunerth, Holloway) at the Suicide Research Symposium in April.

MPS graduate students present at Hawaii International Summit on Violence, Abuse, and Trauma. MPS graduate students **1LT Cheyenne Quilter** (advisor - **Dr. Marian Tanofsky-Kraff**) and **1LT Elisabeth Mata** (advisor - **Maj Abby Diehl**) presented "What Factors Impact a Military Sexual Trauma Survivor Healing Process - Current and Future Research," based on 1LT Quilter's research, at the International Summit on Violence, Abuse, and Trauma.

Graduate student deploys to Honduras in support of Operation Continuing Promise. Public Health PhD student. CPT Kimberly Boua deployed to Honduras to support the Continuing Promise 24 mission, under the Women Peace and Security (WPS) initiative led by PMB Professor **Dr. Lynn Lieberman Lawry**. CPT Boua assisted with the Gender Based Violence (GBV) Symposium, educating over 135 participants over a five day period.

NEU grad student receives SfN Trainee Professional Development Award. Eugene Berezovksi, a graduate student in the laboratory of **Dr. Jeremy Rotty**, was awarded a Trainee Professional Development Award from the Society for Neuroscience (SfN). This competitive award provided a travel allowance for the 2024 Annual SfN Conference in Chicago, IL, where Mr. Berezovski presented his research.

- ¹ <u>https://pubmed.ncbi.nlm.nih.gov/38226159/</u>
- ² https://pubmed.ncbi.nlm.nih.gov/38226159/

"Paying it forward" - MD / PhD students prepare medical students for Capstone research.

Working under the direction of **Dr. Martin Ottolini**, Assistant Dean for Medical Student Research and Director of the <u>Capstone Program</u>, MD/PhD candidates **2d Lt Cecelia Mangione (MCB)**, **2LT Savannah Kounelis-Wuillaume (NES)**, and **2LT Katherine Lee (EID)** developed and led a very wellreceived summer research workshop for medical students.



2LT Savannah Kounelis-Wuillaume, 2LT Katherine Lee, 2d Lt Cecilia Mangione

FACULTY ACCOMPLISHMENTS



Dr. Louis Pangaro

MED Professor receives AAMC award. In September Professor of Medicine **Dr. Louis N. Pangaro** received the 2024 Association of American Medical Colleges (AAMC) Award for Excellence in Medical Education. This award is AAMC's highest honor, recognizing individuals whose contributions have had a profound impact on advancing medical education.

PSY Chair receives MG Lewis Aspey Mologne Award. In November 2024, Department of Psychiatry Chair **COL Vincent**

Capaldi received the Army Surgeon General's Award for Military Academic Excellence - also known as the Major General Lewis Aspey Mologne Award for 2024. The MG

Mologne Award is the Army SG's highest honor, with one active and one reserve officer selected each year from among hundreds of nominations.

CAPT Tamara Worlton named a Fulbright Alumni Ambassador. Early in 2024, **CAPT Tamara Worlton**, Director of the Division of



CAPT Tamara Worlton, MD

Global Surgery and Director of Surgical Operations at the **Center for Global Health Engagement (CGHE)**, was selected as a Fulbright Alumni Ambassador. A 2003 USU graduate and prior Fulbright Scholar, Dr. Worlton is recognized as a Navy expert in surgical global health engagement (GHE).

Dermatology and Pathology Professor receives Helwig Award. Dr. Leonard C. Sperling, Professor of Dermatology and

Pathology, received the American Society of Dermatology's

Elson B. Helwig Memorial Award, the Society's highest honor. The award was presented in recognition of Dr. Sperling's significant contributions to the field of dermatopathology, and his dedication to education and mentorship. In November, Dr. Sperling delivered the Helwig Memorial Lecture at the Society's annual meeting.



Army Surgeon General LTG Mary Izaguirre, D0, presents the 2024 Army Surgeon General Award for Military Academic Excellence to COL Vincent Capaldi, November 2024. Photo: Rod Evans



Dr. Leonard Sperling



L to R: Dr. Jessica Servey, Dr. Ernest Lockrow, Dr. Barbara Ritschel

Faculty Affairs Dean named to AAMC Group on Faculty Affairs. In July, Associate Dean for Faculty Affairs **Dr. Jessica Servey** was named to the Association of American Medical Colleges (AAMC) Group on Faculty Affairs (GFA). In this role, Dr. Servey joins a distinguished group of faculty members and administrators from medical schools around the United States.

Former GSO Chair receives ACOG Lifetime Achievement award. Professor Emeritus and former GSO Chair **Dr. Ernest Lockrow** received the 2024 Luella Klein Lifetime Achievement Award from the American College of Obstetrics and Gynecology (ACOG) Council of District Chairs (CDC). This annual award honors an obstetrician and gynecologist who has dedicated his/her life to women's health.

Pathology Vice Chair named to Academy of Distinguished Pathology Educators. Professor of Pathology and Vice Chair for Education **Dr. Barbara Ritschel** was elected by the Association of Pathology Chairs Academy of Distinguished Pathology Educators to serve as secretary of the inaugural Academy Board. The Academy of Distinguished Educators works to advance undergraduate and graduate pathology education nationally.



L to R: Dr. Juanita Anders, Col Trimble Spitzer (photos - Tom Balfour), and LTC Jeanne Krick (photo - Jason Edwards, BAMC Public Affairs)

APG Professor receives Lifetime Achievement Award. In August, Professor of Anatomy, Physiology, and Genetics **Dr. Juanita Anders** received a Lifetime Achievement Award from the World Association for Photobiomodulation Therapy. The award was presented at the Association's International Meeting in London.

GSO Associate Professor receives mentorship award. In April, GSO Associate Professor **Col Trimble Spitzer** received the American College of Obstetricians and Gynecologists Armed Forces District 2024 Mentor of the Year Award. Col Spitzer serves as Co-Module Director for the Reproduction & Endocrinology Preclerkship module, supporting dozens of students' research projects each year, and also serves as an ACOG National Board Examiner.

National faculty member receives Surgeon General's Award. Late in 2024, Associate Professor of Pediatrics and SAUSHEC Neonatology-Perinatology Fellowship Program Director **LTC Jeanne Krick** received the Army Surgeon General's Physician Recognition Award for the rank of Lieutenant Colonel. The award is presented yearly to one Army physician in each rank.



L to R: COL Brett Theeler, Lt Col David Lindholm, LTC Milissa Jones

Neurology Chair selected to lead new CDMRP research program. COL Brett Theeler, Chair of the Department of Neurology, was elected Chair of the Programmatic Panel for the CDMRP Rare Cancer Research Program. Dr. Theeler will lead the panel from 2024 to 2026.

San Antonio Dean named Air Force Academic Physician of the Year. Lt Col David Lindholm, Associate Professor of Medicine and San Antonio Associate Dean for Regional Education was selected as Air Force District of Washington Academic Physician of the Year for 2024, and was then selected from among all District winners as Academic Physician of the Year for the Air Force.

PED Associate Professor is a "40 Under 40" Leader. In April, Associate Professor of Pediatrics LTC Milissa Jones was selected by the NMQF as a "40 Under 40 Leader in Minority Health for 2024." Among the 40 honorees, Dr. Jones is one of only three federal employees.



L to R: Dr. Maureen Hood, Dr. Vijay Singh, Dr. Emily Ricotta

RAD Professor named as AHA Multimodality Imaging Community Lead. Professor of Radiology and Radiological Sciences **Dr. Maureen Hood** was selected to lead the Multimodality Imaging Community and to serve on the Council on Cardiovascular Radiology and Intervention Leadership Committee for the American Heart Association.

PHA Professor receives Honorary Professorship. In November, **Dr. Vijay K. Singh** was honored by Amity University in Delhi, India. As an Honorary Professor, Dr. Singh will provide research support in the areas of radiation injury, radiation countermeasure development, and identification/validation of biomarkers.

PMB faculty member recognized by Einstein Foundation. In November, Assistant Professor of Preventive Medicine and Biostatistics **Dr. Emily Ricotta** was selected as a finalist for the 2024 Einstein Foundation Award for Promoting Quality in Research. Ricotta was among five researchers selected from 109 applicants to present their work at Berlin Science Week 2024.

Leadership in Family Medicine. Associate Professor of Family Medicine **Lt Col Jeanmarie (Gigi) Rey** was elected President of the Uniformed Services Academy of Family Physicians (USAFP), while Associate Professor **Dr. Christina Kelly** was appointed to the American Board of Family Medicine's Board of Directors.



Lt Col Gigi Rey, Dr. Christina Kelly

RESEARCH

Throughout 2024, the USU School of Medicine continued to strengthen its reputation as a top US research institution. In its most recent published survey of federally financed higher education R&D expenditures (for FY23), the National Center for Science and Engineering Statistics ranked USU 47th (among 899 institutions surveyed) for federally funded research. This is a significant rise from our FY22 rank of 82, and places us among the top roughly five percent of institutions. With sharp focus on military-relevant research in the fields of traumatic brain injury, infectious disease, PTSD, cancer, tropical medicine, and rehabilitation, School of Medicine researchers are dedicated to advancing the health and well-being of military members, veterans, and their families.



MURTHA CANCER CENTER RESEARCH PROGRAM: DOD-LEADING CANCER RESEARCH

Advanced computational infrastructure drives cancer research. In 2024, the Murtha Cancer Center Research Program (MCCRP) expanded its molecular data analysis capacity by installing advanced computational infrastructure. This new CMDZ409- 5YR Cisco Storage Cluster augments the existing USU Center for Military Precision Health (CMPH) computing environment to provide an estimated 20 petabytes of storage capacity to support research studies within MCCRP and across USU. With high-capacity, high-availability, high-speed computing resources, MCCRP expects to sequence and analyze over 8,000 cases in the next five years for the Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) study.

44 new research protocols address service-related environmental contaminant and toxin exposure. MCCRP also initiated 44 multi-agency federal, academic, and private research protocols to address myriad service-related exposures to environmental contaminants and toxin hazards. These research studies are designed to meet PROMETHEUS (PROject for Military and Toxin History Evaluation in US Service Members) requirements, working with public-private partners to discover advanced precision oncology technologies, support prevention, early detection, and enhanced treatments for cancer.

Nationwide research network expands. Also in 2024, MCCRP expanded its nationwide Murtha Research Network to 9 Military Treatment Facilities, 7 VA Medical Centers, and 4 civilian medical centers; and joined the NCI Cancer Screening Research Network (CSRN). The Murtha Research Network develops and tests ways to improve cancer care and translational cancer research throughout the Military Health System. It maintains research biospecimens, gathers and analyzes data, and manages clinical trials to meet DoD investigators' research needs. Working with the CSRN, MCCRP is participating in multi-center cancer screening trials and studies with large and diverse populations, with the ultimate goal of preventing cancer, and reducing cancer-related morbidity and mortality.







3D bioprinting onboard the International Space Station. Last year, *Popular Science* selected the meniscus biofabrication technology used on the International Space Station and developed by the Center for Biotechnology (4D Bio³), as a top 50 innovation. Late in 2024, the Center published peerreviewed research ("<u>3D bioprinting meniscus tissue onboard the International Space Station</u>")³ on the technology, which could be immensely valuable in long-term space flight.

First-of-its-kind research on multiple system atrophy. In July, researchers from the <u>Department</u> of <u>Anatomy</u>, <u>Physiology</u>, <u>and Genetics (APG)</u> published the first genetic association study for multiple</u>

³ https://pubmed.ncbi.nlm.nih.gov/39521498/

system atrophy (MSA) in the journal Neuron. "<u>Genome sequence analyses identify novel risk loci for</u> <u>multiple system atrophy</u>"⁴ (Chia et al) "highlights the role of genetic determinants in the pathogenesis of MSA."

BIO publication with medical student contribution selected as a *Molecular Biology of the Cell* featured article. "The p24-family and COPII subunit SEC24C facilitate the clearance of alpha1antitrypsin Z from the endoplasmic reticulum to lysosomes," which sheds light on cellular processes that contribute to liver disease, was selected by the journal *Molecular Biology of the Cell* as a highlighted article. Post-Doctoral Fellow **Dr. Benjamin Roberts** is the lead author, and medical student **ENS Debashree Mitra** is the second contributing author.

Possible new approaches for infertility. In "<u>Spermatocytes have the capacity to segregate</u> <u>chromosomes despite centriole duplication failure</u>"⁵ (EMBO Reports, 28 June 2024, Skinner, et al) researchers from the <u>Department of Biochemistry's</u> Jordan Lab determined that infertility caused by centrosomal defects may be overcome with assisted reproductive technologies such as round spermatid injection (ROSI).

GSO research examines training and care approaches that may improve maternal and infant health. In two 2024 publications, the <u>Department of Gynecologic Surgery and Obstetrics (GSO)</u> finds that training and care approaches have positive impacts on health outcomes for mothers and babies. "<u>Validation of a Simulation-Based Resuscitation Curriculum for Maternal Cardiac Arrest</u>" (*Obstetrics and Gynecology*, **December 1, 2023**) found that simulation-based training for management of maternal medical emergencies "significantly improved (participants') knowledge, skills, and self-efficacy." In "<u>Pregnancy outcomes after implementation of an induction of labor care pathway</u>" (*AJOG Global Reports*, February 2024), researchers found that a standardized induction of labor pathway led to improved pregnancy outcomes. GSO's work has broad implications for pregnancy care and medical education, in both military and civilian settings.

Using machine learning to screen for suicide risk. The <u>Center for the Study of Traumatic Stress</u> (<u>CSTS</u>) and collaborators used 2014-2019 Army STARRS (Study to Assess Risk and Resilience in Service Members) data to develop a machine learning model that outperformed suicide risk screening questions in predicting suicide attempts. Published in *Nature Mental Health* ("Predicting suicide attempts among US Army soldiers using information available at the time of periodic health assessments," Naifeh et al), the research suggests that a similar model could be used to develop targeted interventions following periodic health assessments.

New APOLLO network research may lead to better treatment options for ovarian cancer. In "Proteogenomic analysis of enriched HGSOC tumor epithelium identifies prognostic signatures and therapeutic vulnerabilities"⁶ (NPJ Precision Oncology, March 13, 2024; Bateman, Abulez, Soltis, et al), researchers in the <u>MCCRP's Gynecologic Cancer Center of Excellence (GYN-COE</u>) and the <u>APOLLO</u> research network conducted a molecular profiling study of high-grade serous ovarian cancer (HGSOC) tumors. The researchers identified proteins associated with poor outcomes and lower survival rate, which helped them to pinpoint potential therapeutic targets. This could lead to better treatments for this deadliest of epithelial ovarian cancer subtypes.

TrEAT 2.0 visits Honduras. In April and May, <u>Infectious Disease Clinical Research Program (IDCRP)</u> Director **COL Rob O'Connell** deployed to Honduras to lead study enrollment and site activities for the TrEAT TD 2.0 clinical trial at Joint Task Force-Bravo, Comayagua Air Base. TrEAT 2.0 (Trial Evaluating Ambulatory Therapy of Travelers' Diarrhea) is evaluating a new TD treatment protocol that speeds recovery time. As IDCRP Science Director **Dr. David Tribble** explains, TD is extremely common; and although it seldom leads to serious illness, it is an "operational killer" with "major impacts on military

- 4 https://pubmed.ncbi.nlm.nih.gov/38701790/
- ⁵ https://pubmed.ncbi.nlm.nih.gov/38943004/
- 6 https://pubmed.ncbi.nlm.nih.gov/38480868/

readiness." A readily available, efficacious treatment will improve readiness while also solving a significant public health challenge that limits work and leisure activities for millions of people.



COL O'Connell (2nd from right) with JTB personnel at Soto Cano Air Base, Honduras

Academic Research Cloud. In November, the School of Medicine launched the Academic Research Cloud (ARC), a secure, collaborative, cloud-based platform for bioinformatics research. The ARC provides powerful computational resources, data storage, and analytical tools, enabling researchers to analyze complex datasets and efficiently conduct advanced analytics. This new initiative will accelerate research and advance discovery across USU.



MEM publishes research on USU graduates' preparedness for their first deployment. In May, researchers from the Department of Military and Emergency Medicine (MEM) published "<u>Civilian and</u> <u>Military Medical School Graduates' Readiness for Deployment: Areas of Strength and Opportunities</u> for <u>Growth</u>"⁷ (*Military Medicine* 2024 Aug, Cole, Durning, Reamy, Shen, Rudinsky), the fourth in a series of research articles on medical school preparation for military medical officers. All four studies demonstrate that USU's military medical curriculum prepares graduates for service as military physicians and officers.

7 https://pubmed.ncbi.nlm.nih.gov/38720554/



Class of 2025 medical students at Operation Bushmaster, October 2024

Microbiology researchers find therapeutic targets against chlamydia, Nipah virus, and Hendra virus. Chlamydia is a key cause of infertility in women and blindness in newborns. In "<u>Irradiated</u>



whole cell Chlamydia vaccine confers significant protection in a murine genital tract challenge model"8 (Broder, et al, NPJ Vaccines, 2024 November 11) researchers from the Department of Microbiology and Immunology identified a vaccine target for the disease. MIC also made the cover of Science Translational Medicine with "Therapeutic administration of a cross-reactive mAB targeting the fusion glycoprotein of Nipah virus protects nonhuman primates".9 Nipah virus has a 40 to 90 percent mortality rate in humans, and no vaccines or therapies are currently available. This new research examines a monoclonal antibody shown to have protective effects in non-human primates. The monoclonal antibody, which was selected by the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND) for production, clinical trial, and stockpile, was listed on the Coalition for Epidemic

Preparedness Innovations (CEPI) list of top innovations for 2024.

MED research reveals connection between moderate to severe brain injury and brain cancer in post-9/11 veterans. Published early in 2024, "Traumatic Brain Injury and Subsequent Risk of Brain Cancer in US Veterans of the Iraq and Afghanistan Wars"¹⁰ (JAMA Open Network, 2024 Feb 5, Stewart *et al*) followed more than 1.9 million veterans over a 7+ year time period, finding that service members who had sustained moderate to severe brain injuries had a dramatically higher risk for developing brain cancer. Professor of Medicine **Col Ian Stewart** was the study's principal investigator and lead author.

- ⁸ https://pubmed.ncbi.nlm.nih.gov/39528548/
- ⁹ https://pubmed.ncbi.nlm.nih.gov/38569014/ 10 https://pubmed.ncbi.nlm.nih.gov/38569014/
- ¹⁰ https://pubmed.ncbi.nlm.nih.gov/38358743/

Students publish Pharmacology research on lung cancer treatment effectiveness. A research team headed by PHA Associate Professor **Dr. Robert Kortum**, in collaboration with Boehringer Ingelheim, published "SOS1 Inhibition Enhances the Efficacy of KRASG12C Inhibitors and Delays Resistance in Lung Adenocarcinoma"¹¹ (*Cancer Research*, 1 Jan 2025, Daley *et al*). Their research suggests that combined SOS1:KRAS inhibition could be an effective treatment strategy to prolong therapeutic effectiveness in lung cancer patients. MD/PhD student **ENS Brianna Daley** and MCB graduate student **Nancy Sealover** were the first- and second-named authors of this study.

APG and PMR collaborate to publish new research on cortical reorganization following limb loss. Early in the year, researchers from the <u>Department of Anatomy</u>, <u>Physiology</u>, <u>and Genetics (APG)</u> and the <u>Department of Physical Medicine and Rehabilitation (PMR)</u> collaborated to publish "<u>Cortical</u> <u>Reorganization after Limb Loss: Bridging the Gap between Basic Science and Clinical Recovery</u>"¹² (*Neuroscience*, 3 January 2024). As APG author **Dr. Emily Petrus** explained, the collaboration between APG and PMR (**Dr. Paul Pasquina** and **Dr. Tawnee Sparling**) allowed the clinicians to learn more about neural circuitry, while the basic science researchers learned about patient population phenotypes. The Departments plan additional future collaborations.

SC2i research points the way toward better wound healing outcomes. In "<u>The influence of</u> microbial colonization on inflammatory versus pro-healing trajectories in combat extremity wounds"¹³ (*Scientific Reports*, March 4, 2024, Schobel, Gann, Unselt, et al), <u>Surgical Critical Care Initiative (SC2i)</u> researchers examine the role of microbial colonization and subsequent infections on healing of blast-related extremity wounds. In addition to valuable insights on how and why combat wounds fail or heal, this study and studies like it "lay a foundation for precision medicine tools to improve clinical outcomes in traumatic wound care" in both combat and civilian settings.

Research demonstrates the value of simulation-based education. In August, Simulation Assistant Dean **Dr. Joseph Lopreiato** published the first-ever comprehensive survey of MHS SIM centers ("<u>Survey of Current Simulation Based Training in the US MHS</u>"¹⁴ *Military Medicine*, 19 August 2024, Bacik, Lopreiato, Burke), which covered 75 of the 93 MHS simulation centers. The **Department of Pediatrics** also published "<u>Using an Innovative Model to Improve Performance of the Infant Hip</u> <u>Exam</u>"¹⁵ (*Hospital Pediatrics*, 17 July 2024, Joshi et al), showing that a new teaching model employing a USU-developed simulator could dramatically improve pediatric interns' ability to detect hip dislocation in infants.

New MRI equipment expands small animal imaging capacity. The Biomedical Research Imaging Core (BRIC) of the Department of Radiology and Bioengineering upgraded its preclinical 7T MRI system to the latest available platform, thus expanding the array of small animal imaging from primarily brain only, to all body parts and multinuclear spectroscopy.

Leadership in prostate cancer research. Prostate cancer is the second leading cause of cancerrelated deaths among US men, with a notably high incidence among veterans and active-duty personnel. Early in 2024, the Center for Prostate Disease Research (CPDR) under the Murtha Cancer Center Research Program (MCCRP) held its first annual scientific retreat, welcoming prostate cancer researchers from USU, the Joint Pathology Center, and the National Cancer Institute. Also in 2024, CPDR's **Dr. Cara Schafer** received a 2024 Prostate Cancer Fund Young Investigator Award; while CPDR Scientific Director **Dr. Leigh Ellis** and Assistant Professor **Dr. Xiaofeng Allen Su** were recommended for \$1.2M grants from the DoD Office of Congressionally Directed Medical Research Programs (CDMRP) FY24 Prostate Cancer Research Program (PCRP) Idea Development Award program.

¹¹ https://pubmed.ncbi.nlm.nih.gov/39437166/

¹² https://pubmed.ncbi.nlm.nih.gov/38171645/

 ¹³ https://pubmed.ncbi.nlm.nih.gov/38438404/
¹⁴ https://pubmed.ncbi.nlm.nih.gov/39160867/

¹⁵ https://pubmed.ncbi.nlm.nih.gov/39150807/



L to R: Dr. Leigh Ellis, Dr. Xiaofeng Allen Su, Dr. Cara Schafer

RESEARCH AWARDS AND GRANTS

Algorithm risk detection to prevent suicide. The Department of Psychiatry and Center for the Study of Traumatic Stress received \$10.7M in funding from the Assistant Secretary of Defense for Health Affairs for a large-scale research initiative, "Suicide Avoidance Focused Enhanced Group Using Algorithm Risk Detection" (SAFEGUARD). SAFEGUARD uses machine learning in developing predictive models to identify service members at high risk for suicidal behavior. Working with subject matter experts, researchers are developing best practice-based targeted interventions. Study recruitment is scheduled to begin in July 2025.

Family Medicine receives CDMRP grant to fund chronic pain research. Family Medicine Professors **Dr. Paul Crawford** and **Dr. Jeff Goodie** received a \$5M grant from the DoD Chronic Pain Management Research Program. Drs. Crawford and Goodie are partnering with a group of military family physicians on a research project titled "Comparing Cognitive Behavioral Therapy and Acupuncture for Managing Chronic Pain (COMBAT-Pain)."

HPE receives AERA Division I research awards. In April, CHPE researchers led by **CAPT Michael Arnold** received the American Educational Research Association (AERA) Division I research award for their research on the connection between MCAT scores and medical school admissions. Additionally **Dr. Paolo Martin** and **Dr. Lakesha Anderson** received an AERA grant funding research on improving care and communication around postpartum depression (PPD).

PMB Assistant Professor and team win \$2M XPrize competition. Dr. Mohammed Sallam, an Assistant Professor in the Department of Preventive Medicine and Biostatistics, was a member of the research team awarded first prize in the \$2M XPrize Competition.

Supporting military families caring for children with mental and developmental health concerns. The **Division of Military Child and Family Research, Department of Pediatrics** was awarded the PCORI Engagement Award in Capacity Building for "Empowering Military-Connected Stakeholders: Building Capacity for Patient-Centered CER Participation" (**PI Dr. Binny Chokshi**). The work funded by this grant will focus on support for military-connected parents whose children have mental and developmental health concerns and diagnoses.

First-place wins at USAFP research competition. "Organizational Impact of a Faculty Development Program on Interprofessional Educators," a qualitative study considering change in educational culture, won first place in the student research competition at the 2024 Uniformed Services Academy of Family Physicians annual meeting in New Orleans. Primary authors were medical students **2d Lt Ryan Sanborn** and **ENS John Nowell**, mentored by Associate Dean of Faculty Affairs **Dr. Jessica Servey**. Associate Professor of Family Medicine and PMB **Dr. Alan Williams** also received first-place honors in the clinical investigation research competition, for "Ensuring Hepatitis B immunity in military healthcare workers: Heplisav-B versus Standard Hepatitis B vaccine." Department of Physical and Medical Rehabilitation (PMR) receives CDMRPx OPORP Clinical Research Award. Pl Dr. Brad Hendershot along with co-investigator Dr. Tawnee Sparling received a Congressionally Directed Medical Research Program (CDMRP) Orthotics and Prosthetics Outcome Research Program (OPORP) grant for their project "Determining the Influences of an Osseointegrated Prosthesis Interface on Perception and Control."

CDP and CSTS PRMRP research proposal selected for funding. Researchers at the <u>Center for Deployment Psychology</u> and <u>Center</u> for the Study of Traumatic Stress were selected



ENS John Nowell (I) with 2d Lt Ryan Sanborn

for Peer Reviewed Medical Research Program (PRMRP) funding. The project, a collaboration among researchers at USU, San Diego State University, and the I-Marine Expeditionary Force (I-MEF) at Marine Corps Base Camp Pendleton, aims to reduce suicide risk through sleep health interventions among Marines at the I-MEF.



L to R: Ms. Jaime Rodden and Dr. Maegan Paxton Willing of the Center for Deployment Psychology with Dr. Jeffrey Mann at I-MEF headquarters



L: Dr. Patrick Richard. R: Dr. Jangho Yoon

PMB MilHEP lab secures \$1M in DHA funding. The Department of Preventive Medicine and Biostatistics (PMB)'s Military Health Economics and Policy Research Lab (MilHEP) received over \$1M in grant funding from the DHA Military Health Systems Research Program, with funded projects to be led by Dr. Patrick Richard and Dr. Jangho Yoon.

STUDENT RESEARCH



L: CPT Matthew McDonough, MD (Class of 2024). R: 2LT Mason Remondelli (Class of 2025)



L: ENS Alexius Russell. R: 2d Lt Samantha Williamson

Student research on MHS readiness. Class of 2025 Army medical student **2LT Mason Remondelli** and 2024 graduate **CPT Matthew McDonough, MD** published "<u>Refocusing the Military</u> <u>Health System to Support Role 4</u>. <u>Definitive Care in Future Large-Scale Combat Operations.</u>"¹⁶ Their work emphasizes the importance of "Medical force generation, medical force sustainment and readiness, and integrated casualty care capabilities... (as the) three pillars (of) MHS readiness."

Student-authored Dermatology research. Medical students ENS Alexius Russell and 2d Lt Samantha Williamson are first- and secondnamed authors of "Reappraising the Use of Systemic Immunomodulators for Psoriasis and Eczema in the Military,"¹⁷ (*Military Medicine*, Russell, Williamson, Rosenberg, Cho), which garnered mainstream and scientific media attention for its discussion of promising new biologics and immunomodulators for managing psoriasis and eczema.

Graduate student publishes mTBI research. Graduate student **William Jesse Flerlage**, a PhD candidate in the laboratory of **Dr. Fereshteh Nugent**, was the lead author on two important publications In "Effects of Repetitive Mild Traumatic Brain Injury on Corticotropin-Releasing Factor Modulation of Lateral Habenula Excitability and Motivated Behavior"¹⁸ (*J. Neurotrauma*, 2024 July 18, Flerlage et al) and "Dysregulation of kappa opioid receptor neuromodulation of lateral habenula synaptic function following a repetitive mild traumatic brain injury"¹⁹ (*Pharmacology Biochemistry and Behavior*, 2024 July 26, Flerlage et al), the researchers studied mild traumatic brain injury (mTBI) in male and female mice to learn more about mTBI's impacts on activity levels, behavior, and neurosensory response.

Student-authored research presented to DoD Working Group. In "Association Between Body Composition Standards and Eating Disorder Medical Claims Among Active-Duty Service Women," (Journal of Eating Disorders, 19 Feb 2024, Korona-Bailey, Banaag, Walker, Fortin, Eyeler, Koehlmoos) a Center for Health Services Research (CHSR) research team including SFC Jasmine Walker (MPH student) and medical students 2LT Megan Eyeler and ENS Stephanie Fortin looked at the perception of eating disorder risk for active duty service women, and found that service women are actually not at higher risk for eating disorders than their civilian counterparts. On February 22, CHSR Director Dr. Tracey Koehlmoos presented the team's study to the DoD Body Composition Working Group.

- 16 https://pubmed.ncbi.nlm.nih.gov/38720205/
- ¹⁷ https://pubmed.ncbi.nlm.nih.gov/38607726/
- ¹⁸ https://pubmed.ncbi.nlm.nih.gov/38943284/
- ¹⁹ https://pubmed.ncbi.nlm.nih.gov/39067532/



L to R: SFC Jasmine Walker, ENS Stephanie Fortin, 2LT Megan Eyeler

ENLISTED TO AUTHOR: EMDP2 STUDENTS CONTRIBUTE TO TEACHING AND RESEARCH

In "Emergency Fresh Whole Blood Transfusion Training for Ukrainian Health Professionals in Austere Environments" (J Spec Oper Med, 2024 March 4, Brown, Cuestas, Matthews, Shumaker, Moore, Cole) researchers determined that effective training significantly improves medical professionals' confidence in their ability to conduct emergency transfusions in combat settings. EMDP2 students **SFC Zachery** Brown (now 2LT Zachery Brown), HM1 (FMF/FPJ/MCD) Joshua Cuestas (now ENS Joshua Cuestas), HM1(FMF/SW) Kevin Matthews (now ENS Kevin Matthews), and HM1(FMF) Jonathan T. Shumaker contributed to the research as well as helping to develop and deliver the EFWBT training course. 2LT Brown, ENS Cuestas, and ENS Matthews are now Class of 2028 medical students.



Clockwise from top left: 2LT Zachery Brown, ENS Joshua Cuestas, HM1(FMF) Jonathan Shumaker, ENS Kevin Matthews



ENS Makinna Farrell, ENS Kiia Crawford

2024 EMDP2 graduates CTM1 Kiia Crawford (now ENS Kiia Crawford) and **CTI1 Makinna Farrell (now ENS Makinna Farrell)** are co-authors of "The Relationship between the Military Medical Officer and Commanding Officer: Implications for Education and Training" (Cole, Crawford, Farrell, Vojta, Schwartz, Rudinsky, Military Medicine 2 July 2024). Conclusion: "Communication, presence, and role fulfillment are

essential elements for optimizing the MMO-CO working relationship. Learning these roles during medical school may enhance early career physicians' mission readiness." ENS Crawford and ENS Farrell are both Class of 2028 medical students.

ADVANCING MILITARY AND PUBLIC HEALTH



Virtual learning tool wins Gold Medal at **International Serious** Play Awards. In July, the Center for Deployment Psychology's "SLIPS" - Second Life Island for Preventing Suicide - won the top prize at a prestigious game-based learning conference in Toronto. SLIPS, developed by Dr. Kevin Holloway and Dr. Maegan Paxton Willing, is an interactive experience that allows

Simulated learning environment in the award-winning SLIPS game

students to practice their suicide risk assessment and suicide prevention skills with simulated patients in a game-like environment.

DVCIPM helps to drive down opioid overdose death rate. The Defense and Veterans Center for

Integrated Pain Management (DVCIPM) has been collaborating with the Defense Health Administration (DHA) in a large-scale, multi-year

effort to combat opioid misuse and overdose by increasing the rate of DHA providers coprescribing the opioid overdose antidote naloxone to patients with elevated risk of opioid overdose. As a result of this collaboration, the DHA coprescription compliance rate has reached 79.5%. In late 2024, as reported by NPR and other major media outlets, the CDC released data showing that overdose deaths have decreased



Photo, Janet A. Aker. Courtesy of Defense Visual Information Distribution Service (DVIDS)

substantially in the past year. DVCIPM's researchers believe that this trend is partly attributable to naloxone co-prescription and other harm-reduction efforts. DVCIPM also assisted DHA in updating mandatory prescriber safety training.



Cardiovascular care for tactical athletes: The MiCOR Program

Evaluation of tactical athletes — such as firefighters, police officers, emergency medical technicians (EMTs), astronauts, and military personnel — is critical because a cardiac event in the line of duty could compromise the safety of others and endanger the mission's success. Unlike in competitive athletes, shared decision making (SDM) for tactical athletes must consider the safety of the team and the success of the mission as well as the safety of the athlete.

Cardiologists who care for tactical athletes must therefore understand the physical demands and risks in specific work environments. For example, a tactical athlete with aortopathy might be able to safely perform tasks that require moderate amounts of dynamic exertion, but not high levels of static strain. A classification matrix will aid clinicians in assessing the static and dynamic demands of tactical athletes in different roles.

In 2024, the Military Cardiovascular Outcomes Research (MiCOR) group continued to push for elite athlete-level care for warfighters. Beginning with screenings at the service academies, MiCOR is gathering data to support its recommendation to implement ECG screenings for all accessions.

MiCOR also continues to publish research and commentary on cardiac care for tactical athletes. In "Cardiovascular Care of Tactical Athletes: Have We Landed Yet?" (*JACC: Advances*, 2024 October 3, Petek, Chung, et al.) authors including **Drs M. Alaric Franzos** and **Mark Haigney** discuss the specific cardiac care needs of tactical athletes and outline 10 areas for future research and inquiry.

"Why does the Army care about sleep?" In February, **COL Vincent Capaldi**, Professor and Chair of Psychiatry, gave the keynote address for the DARPA REM Rest Program exploring the role of REM sleep in treating and preventing the invisible wounds of war. COL Capaldi's talk, "Why does the Army Care About Sleep?" addressed the role of sleep as critical in winning the cognitive war on the multidomain battlefield.

Pediatrics leads Military Tropical Medicine training mission. In August, PED Chair **COL Patrick Hickey** and Assistant Professor **Lt Col Alison Helfrich** led a Military Tropical Medicine training trip to Honduras. The team visited San Pedro Sula, Tegucigalpa, and Comayagua; and in addition to training, they supported public health efforts to combat dengue by collecting larvae samples and observing high risk areas for vector-borne diseases. The trip received extensive coverage from print and TV media in Honduras. As Dr. Hickey explains, deployed service members are often exposed to highly contagious tropical diseases including dengue, making research and clinical training for addressing these diseases critically important to military health.



Military Tropical Medicine (MTM) field training in Honduras - USU delegation meets with Honduran medical professionals

MILITARY MEDICAL LEADERSHIP, AT HOME AND ABROAD

ICMMS 2024 attracts military medical educators from around the world. In September, USU hosted the International Conference of Military Medical Schools (ICMMS). Built on the theme "*Shaping the Future of Military Medical Education through Innovation and Collaboration*," ICMMS welcomed military medical educators from Argentina, Canada, France, Germany, Ghana, India, Israel, Japan, Senegal, Singapore, Ukraine, and the United Kingdom.



Military medical educators and students gather at the International Conference of Military Medical Schools, September 2024

Recognized expertise in military medicine. Expertscape, a worldwide, free database that ranks institutional and provider expertise in a range of specialized medical topics, placed USU third in the world for military medical expertise. Additionally, many current faculty members and alumni rank as top individual experts.

"Leadership for Public Purpose" - USU selected for prestigious institutional classification. Under the leadership of **LTC Angela Yarnell** and her team (**Dr. Erin Barry, Hannah Kleber, Brooke Forrest, Caroline Hanson**), USU was selected by the American Council on Education (ACE), the Carnegie Foundation for the Advancement of Teaching, and the Doerr Institute for New Leaders at Rice University for the 2024 Carnegie Elective Classification for Leadership for Public Purpose. The selection committee praised USU for "excellent alignment among campus mission, culture, leadership, resources, and practices (supporting) dynamic and noteworthy leadership for public purpose."



Documenting the history of wartime medicine. In November 2024, **Dean Eric Elster** and University of Pennsylvania Professor of Surgery **Dr. Jeremy Cannon** published an updated edition of Dr. Edward Churchill's *Surgeon to Soldiers*. Dr. Churchill served as the chief surgical consultant for the Allied Forces in the Mediterranean, where he played a crucial role in advancing trauma care in combat zones, and his book is still used as a textbook for military surgeons. The 2024 edition, with commentary from Drs. Elster and Cannon, sheds new light on Churchill's contributions to wartime medicine. This project is part of the School of Medicine's ongoing effort to preserve and document battlefield lessons learned for future generations of military physicians and surgeons.

Dean Eric Elster with the 2024 edition of Surgeon to Soldiers

SCHOOL OF MEDICINE AND PARTNERS ASSIST PROFESSIONAL SPORTS LEAGUES WITH SUPPLEMENT SAFETY EDUCATION AND TBI RESEARCH

In April 2024, **Neurology** Associate Professor **CDR Kent Werner**, with Dr. Nicholas Be of the Lawrence Livermore National Laboratory, secured a grant from the NFL Players' Association to fund research on the microbiota-gut microbiome-brain axis. Responding to NFLPA's call for research proposals focused on the role of microbiome science in TBI research, Dr. Werner and Dr. Be proposed to test user-friendly approaches to microbiome sampling (inguinal wipes as opposed to rectal swabs), and their \$500,000 proposal was selected.

In May, the Consortium for Health and Military Performance (CHAMP) and Operation Supplement Safety (OPSS) joined Major League Baseball to host the inaugural Performance Enhancing Substances (PES) Summit. Associate Professor of Family Medicine and NCC Sports Medicine Fellowship Director LTC Chad Hulsopple described the summit as "a valuable opportunity to connect with professionals from the military, government, professional sports leagues, and industry, fostering a highly collaborative environment that left me optimistic about the future support available to our service members -events like this have the potential to drive significant innovation and advancements."









Faculty present at Warfighter Brain Health Symposium in Warsaw. In March, Psychiatry Chair COL Vincent Capaldi and Vice Chair for Research Dr. Curt West traveled to Warsaw, Poland to present at the Warfighter Brain Health Symposium. COL Capaldi and Dr. West were joined by Center for Deployment Psychology (CDP) Director Dr. William Brim and faculty members Lt Col Thomas Bayuk, Maj Eric Meyer, Dr. Warren Dorlac, and Dr. John Holcomb. CDP and Center for the Study of Traumatic Stress (CSTS) faculty also attended the Ukraine Research Needs and Capabilities Symposium in Warsaw, gathering with over 40 U.S. and Ukrainian combat casualty care experts to discuss medical operations and research in Ukraine. Dr. Brim and Psychiatry Professor and CSTS Associate Director Dr. David Benedek also presented on current and future mental health training and research in Ukraine.



L to R: COL Sebastian Schnellbacher, MD; COL Vincent Capaldi, MD; Dr. James West, and Lt Col Eric Meyer, MD in Warsaw, Poland, Spring 2024

PMR collaborates with Italian military physicians. In November 2024, the Center for Rehabilitation Sciences Research (CRSR) co-organized "Limb Restoration Techniques: Advancing the Care for War Casualties with Amputation," with the Italian Defense Veterans Center. The first-ofits-kind event, held at Rome's Agostino Gemelli University Polyclinic, was a teaching seminar on the use of advanced surgical techniques for combat-related wound management, particularly in cases of limb loss. The event was organized and led by **Dr. Paul Pasquina**, Chair of the Department of Physical Medicine and Rehabilitation, and **Dr. Tawnee Sparling**, Assistant Professor and Medical Director of Amputee Care. **MAJ Ean Saberski**, Assistant Professor of Surgery, provided lectures and cadaveric training to the surgical attendees. Other instructors included former USUHS Chair of Surgery **COL** (Ret) Benjamin Kyle Potter, CDR (Ret) Jason Souza, and CAPT (Ret) Jonathan Forsberg.



USU and Italian physicians at Agostino Gemelli University Polyclinic

Improving maternal and fetal health outcomes. In July 2024, the Departments of Preventive Medicine and Biostatistics (PMB) and Pediatrics (PED) teamed with the Department of Gynecologic Surgery and Obstetrics (GSO) and conducted a training workshop at Mbeya Zonal Referral Hospital in western Tanzania. The USU team provided comprehensive training in obstetric emergencies and advanced neonatal resuscitation, and 79 training participants provided overwhelmingly positive feedback. The program successfully improved participants' confidence and identified areas for system improvement, contributing to better maternal and neonatal outcomes in the region, and lessons learned for maternal and neonatal care in other resource-limited environments.



USU faculty members and Tanzanian colleagues at Mbeya Zonal Referral Hospital

HPE Chair speaks at Korean Medical Education Conference. In May 2024, HPE Chair **Dr. Steven Durning** traveled to Seoul, where he delivered the keynote address at the Korean Medical Education Conference (KMEC). According to Dr. Durning, the Republic of South Korea is considering establishing a military medical school, and had requested an overview of the School of Medicine's education, research, and leadership missions.



Dr. Steven Durning (5th from left) with Korean military officers and medical professionals

Dr. Kimberly Byrnes

APG Professor co-founds new neurotrauma society. APG Professor and Neuroscience Graduate Program Director Dr. Kimberly Byrnes is the co-founder and first President of the newly established National Capital Area Neurotrauma Society (NCANS). NCANS held its inaugural conference in February 2025.

Improving safety and quality in the pharmaceutical supply chain. In October, Center for Health Services Research (CHSR) Director **Dr. Tracey Koehlmoos** and PHA Chair **Dr. Irwin Lucki** met with members of the National Economic Council, Domestic Policy Council, HHS ASPR, International Trade Commission, FDA, and DoD to discuss the Domestic Production of Pharmaceutical Products (DP3) Project, a key national security initiative. CHSR is also collaborating with Valisure, LLC on "Assessing the Security and Quality of the U.S. Military

Health System Pharmaceutical Supply Chain," a study focused on quality, safety, and availability of pharmaceuticals critical to the Department of Defense.

Genomics-based approach to identifying suicidality. In collaboration with the Army STARRS (Study to Assess Risk and Resilience in Servicemembers) program, the Center for Military Precision Health (CMPH) sequenced whole genomes of over 13,000 soldiers, and identified aberrant expression of several genes in the brains of individuals who died from suicide.

ABOUT THE SCHOOL OF MEDICINE

The USU School of Medicine trains and educates physicians, scientists, and health professionals dedicated to leadership and service careers in the U.S. Armed Forces or Public Health Service. Our students are commissioned officers in the United States Army, Navy, Air Force, Coast Guard, and PHS, who receive full military pay and benefits (as well as a tuition-free medical education); and repay the nation through service commitments (seven years for military, ten years for PHS). Focused equally on medical education, research and innovation, and service to the Nation, the School of Medicine is:

- 1. The Nation's military medical academy, producing military physician-leaders and scientists who drive innovation in academia and federal service
- 2. The focal point for medical education and training throughout the military physician's career lifecycle
- 3. A key federal research and graduate education center that serves as the nexus of biomedical science, health services research, and innovation for the Military Health System

A top research institution (among the top 5% of US research universities for federal research funding), USU conducts research on military-relevant topics including TBI, PTSD, rehabilitation and prosthetics, precision medicine, emerging infectious diseases, cancer, trauma care, and more. School of Medicine alumni comprise 25% of Military Health System physicians and 33% of MHS leadership; and our graduates have a half-century history of remaining in their respective services far beyond their service obligation. The USU School of Medicine has been leading biomedical research and innovation, advancing public health, and educating tomorrow's military physician-leaders for over 50 years.

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