

UNIFORMED SERVICES UNIVERSITY

2022 | Annual Report





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A Letter from our President

In 2022, USU marked its 50th anniversary. Whether through our exemplary actions in patient care, research, health policy, or health professions education, USU continues to provide immeasurable value to our Military Health System, Department of Defense, government, and to our great nation.

This year also marks my first six months as president of this extraordinary university.

Our faculty, staff, and alumni continue to achieve remarkable success here and around the world. The USU Graduate School of Nursing continues its Center of Excellence designation in the National League for Nursing. The Murtha Cancer Center Research Program was chosen as the DoD representative for the White House's federal Cancer Moonshot 2.0 initiative. A team of six USU graduates took second place in USU's Morningstar Global Health Case Competition. And class of 2010 alumnus Army Lt.Col. (Dr.) Frank Rubio, our second NASA astronaut graduate, took his first spacewalk.

As our educational programs evolve, we continue to adapt to the technological and research needs that keep us relevant. Above all, USU continues to achieve the core missions set before us fifty years ago: teaching, research, leadership, and service. As we look forward, I am honored to share with you the successes and accomplishments of the past year.

Sincerely,

Jonathan Woodson, MD, MSS, FACS
President, USU



Dean Introductions



Eric Elster, MD, FACS, FRCSEng (Hon.)

**Captain, Medical Corps, U.S. Navy (Ret.)
Dean, School of Medicine**

2022 was a landmark year for the School of Medicine (SOM) as the USU community came together to celebrate the University's 50th anniversary. It was a joy to reflect on the first fifty years, but our sights are on our 51st year and beyond with three goals that will serve as a foundation for everything we do:

- As the Nation's military medical academy, the SOM will produce military physician-leaders and scientists to serve the Nation
- The SOM will be the focal point for medical education throughout the military physician's career lifecycle
- As a key Federal research and graduate education center, the SOM will serve as the nexus of innovation for the MHS

As a first step toward achieving these goals, we adopted a metrics-for-success approach that is driving results across four priority areas: Education, Leadership and Service, Research and Scholarship, and Operations Improvement. We kicked off our LCME Institutional Self Study, a self-analysis of performance in 93 accreditation elements, leading up to the January 2024 LCME site visit. We are also working to expand and improve the military-unique curriculum that prepares our graduates for military medical service and distinguishes USU from every other medical school.

Medicine demands lifelong learning, and we are expanding our focus on continuing education, with a suite of military-specific readiness skills courses, combining with graduate certificate and degree programs, Maintenance of Certification (MOC) training, and Faculty Development programs to form the basis of a robust continuing ed curriculum for military physicians. Research and scholarship remain key to our goal of leading innovation in the MHS. Our researchers (including students) produce over 2,200 peer-reviewed publications each year, and our emphasis on scholarship placed us among the **top 7% of U.S. medical schools** for research funding (NSF, 2021).

During the first fifty years, USU produced generations of military physician-leaders. In the next fifty years and beyond, we will continue to innovate in medicine and education, seeking further opportunities to serve the MHS, the DoD, and the Nation.



Carol Ann Romano, PhD, RN, FAAN

Dean, School of Nursing

The Daniel K. Inouye Graduate School of Nursing (GSN) prepares the next generation of military nursing leaders who care for those in harm's way and maintain the readiness of our warriors to defend our nation's freedom. The GSN responds to the needs of the military services, is fully accredited, has been recognized nationally as a Center of Excellence, and is ranked in the top five percent of graduate nursing programs. Military students are prepared with a unique curriculum as nurse anesthetists, nurse practitioners, clinical specialists and research scientists with a focus on excellence and operational readiness and with the vision of transforming military and federal health through the pillars of nursing education, scholarship and leadership. The initiatives of the past year demonstrate achievement of our goals: for education to promote a dynamic, innovative, inter-professional process focused on excellence in support of operational readiness; for research and scholarship to be requirements driven, rigorous and collaborative with multiple partners; and for programs to emphasize leadership and leadership development, emphasizing values and inclusion.



Drew W. Fallis, DDS, MS

**Colonel, U.S. Air Force, Dental Corps (Ret.)
Executive Dean, Postgraduate Dental College**

The Postgraduate Dental College (PDC) experienced an exceptional year in 2022 and demonstrated the College's continued effectiveness in meeting the needs of the DoD. As the USU celebrated its 50th Anniversary, the PDC celebrated the 10th Anniversary of its first graduating class, the members of which continue to perform in significant roles in the Army, Navy, and Air Force Dental Corps. The PDC has now grown to comprise the **largest portfolio (19) of MS degree-level advanced dental education programs in the US** and is uniquely structured to provide military mission-focused academic, research, leadership, and leader development that directly enhances the DoD's objectives to achieve and maintain medically-ready fighting forces and ready-medical healthcare teams. The affiliations between the Uniformed Services University and the Army, Navy, and Air Force that established the PDC in 2010 have continued to mature to now include all 26 military Post-Graduate Year-1 (PGY-1) advanced dental education programs. Including these PGY-1 programs under the PDC umbrella has resulted in the ability to conduct focused faculty development opportunities for military dental educators at the earliest possible career opportunity. New strategic initiatives were developed in 2022 to leverage the unique structure of the PDC to improve inter-Service collaborations, faculty development opportunities, and clinical research networks to achieve military-unique educational outcomes.



Lula Pelayo, PhD, RN, FAAN

Dean, College of Allied Health Sciences

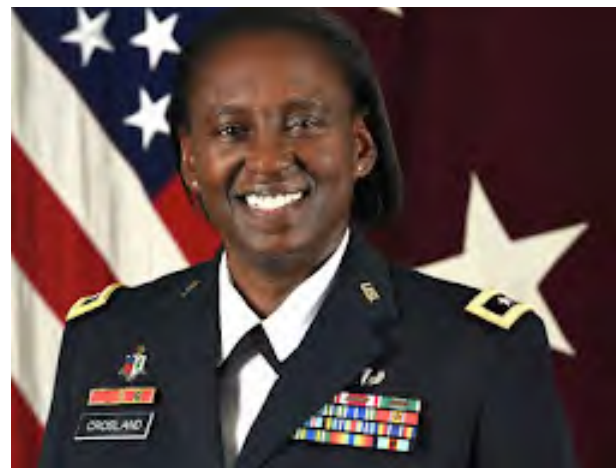
The College of Allied Health Sciences' mission is to educate and train highly competent and ready allied health professionals who are dedicated to serving the needs of the Uniformed Services and providing operational support to units around the world. Additionally, the CAHS supports the attainment of higher educational degrees, professional certifications, licensing, and accreditation across the DoD and with America's men and women in uniform.

The year 2022 marked the 50th anniversary for the USU and the fifth anniversary for the CAHS. This fifth year was the busiest to date for the CAHS. While preparing for the Middle States Commission for Higher Education site visit, the CAHS continued our upward growth trajectory: This included a 26.7% increase in fulltime staff, an annual enrollment increase of 7,419 students, an expanding average daily census of 2381 students, and graduates numbering 911 for 2022 reflecting an impressive 26.6% increase over 2021's total. With all this growth the CAHS remains laser focused on recognizing and supporting the academic achievement of military medical service members during their enlistment.

ALUMNI ACCOMPLISHMENTS



There were 29 graduates in the charter medical school class of 1980. Since then, numerous programs have been added to include graduate programs and the Enlisted to Medical Degree Preparatory Program, along with the Daniel K. Inouye Graduate School of Nursing, Postgraduate Dental College, and the College of Allied Health Sciences. After 50 years, the University now boasts more than 10,000 unique alumni worldwide.



Army Major General Crosland Named Director of the Defense Health Agency

Major General (Promotable) Telita Crosland, a graduate of USU's School of Medicine class of 1993, was selected for promotion to Lieutenant General, Medical Corps, U.S. Army, and the nomination confirmed by the Senate in September. In addition to USU, Crosland is a graduate of the U.S. Military Academy, and the U.S. Army Command and General Staff College. She holds a Doctorate of Medicine, as well as a Master of Public Health from USU, and a Master of Science in National Resource Strategy from the Eisenhower School.



USU Alumnus Awarded Army Nurse of the Year Honors

Army Lt. Col. Christopher Stucky, GSN alumnus and deputy chief of Landstuhl Regional Medical Center's Center for Nursing Science and Clinical Inquiry (CNSCI), and Perioperative Consultant to the Army Surgeon General, received the 2022 Dr. Anita Newcomb McGee Army Nurse of the Year Award for his significant contributions to the nursing profession. The recognition is named for the gynecologist who founded and directed the DAR Hospital Corps, where she trained volunteer nurses for service in the Army and Navy after the outbreak of the Spanish-American War, and later led the establishment of the U.S. Army Nurse Corps.



Dr. Endy Leads 'Disease X,' Deadly Emerging Infections Research and Development

Nearly eight years ago, at the request of its members, the World Health Organization (WHO) developed a research and development plan to prevent epidemics. The WHO hoped to get well ahead of public health emergencies caused by disease outbreaks by reducing the amount of time between discovery and identification of the outbreak and the approval for vaccines or treatments. An advisory group identified a list of about 10 emerging infectious diseases – the priority blueprint diseases – that were among the most serious in the world, such as Nipah virus, Marburg virus, Ebola, Lassa fever, Rift Valley fever, Chikungunya virus, Zika, SARS and MERS. In 2018, the WHO added "Disease X" to the list, saying that "Disease X" represents the knowledge that a serious international epidemic could be caused by a pathogen currently unknown to cause human disease. By adding Disease X to the list, WHO was trying to make sure that planning and capabilities could adapt to this unknown pathogen and potential outbreak. Enter Dr. Timothy Endy, SOM class of 1996 graduate, who has led the Disease X research and development efforts for the Coalition for Epidemic Preparedness Innovations (CEPI). Endy is leading efforts, in partnership with international organizations, non-governmental and governmental agencies, and WHO, to execute the methods necessary to contain a newly-emerging pathogen before it becomes the next pandemic.



Slashing Victim's Life Saved by USU Alumni

Army Lt. Col. Luis Lugo, a USU alumnus and director of USU's Department of Laboratory Animal Resources (DLAR), and retired Army Master Sergeant Michael Junio, DLAR facility manager, were at a restaurant with friends after wrapping up the day's sessions at an annual conference in Louisville, Kentucky, in October, when they heard a cry for help. Nearby, a man had been attacked by a local homeless man in a random act of violence. Lugo and Junio acted quickly, along with former USU colleagues and graduates Lt. Col. Krinon Moccio and retired Army Col. Larry Shelton, saving the man's life.



USU Alumna Honored as U.S. Air Force Flight Surgeon of the Year

Air Force physician Maj. (Dr.) Courtney Beaver, SOM class of 2018 graduate, received the Malcolm C. Grow Award, which recognizes outstanding contributions of Air Force flight surgeons to the flying organization. Candidates for the award must have "demonstrated an outstanding concern for flying personnel as indicated by unusual rapport with flyers and by exceptionally effective support of a flying organization." As the 92nd Medical Group flight surgeon, Beaver tended to hundreds of Afghan evacuees on a C17 aircraft, making sure they were medically ready to make the journey to their next destination as the U.S. was winding down its presence in Afghanistan.



Nearly Two Decades Later, USU Alumnus Returns as Student Military Leader

Army Col. (Dr.) Jay Dintaman, a 2003 SOM graduate, returned to campus to help lead the next generation of uniformed physicians as the newly-appointed commandant of students for the SOM. He is responsible for the military day-to-day aspects of the nearly 800 medical students, uniformed graduate students, and Enlisted to Medical Degree Preparatory Program students at USU, a task he is well qualified for and excited to begin.



USU Alumnus Rear Admiral Darin Via Named Navy Deputy Surgeon General

Navy Rear Adm. Darin K. Via, a 1991 SOM graduate, became the Navy's second highest medical leader in 2022 following his selection as its new Deputy Surgeon General. Via, who was most recently the commander of the Naval Medical Forces Atlantic and director of the Navy's Tidewater-area medical market, is also dual-hatted as deputy chief of the Navy Bureau of Medicine and Surgery (BUMED) and director of the Medical Resources, Plans and Policy Division, in the Office of the Chief of Naval Operations in Washington, D.C.



USU Alumnus, Faculty Provide Medical Relief in Ukraine

In May, a surgical team led by retired Air Force Col. (Dr.) Warren Dorlac, a 1989 USU SOM grad and associate professor of Surgery, arrived in Lviv, Ukraine, to begin a volunteer mission supporting Ukraine's civilian Emergency Medical Clinical Hospital. Dorlac's team joined an existing team of volunteer surgeons

deployed by the Global Surgical Medical Support Group (GSMSG), a non-profit organization that sends volunteer surgeons and physicians to disaster and conflict zones around the world. Their program provides visiting surgeons training in combat casualty care, and sends volunteer combat surgeons to work directly with Ukrainian clinicians and caregivers.



Road to Retirement Leads Back to Public Service for USU Alumna

Dr. Rosemary Lesser, who earned her MD from USU in 1981, had just retired after running her private practice for about two decades when her local political party asked if she would consider throwing her name into the ring for a seat recently vacated after the death of its incumbent. She won the election and took office in January. Lesser is focusing on the food tax issue and a number of medical issues, including her efforts to expand Medicaid coverage for a year after childbirth. Eventually, she will make her way back to her retirement plans, but for now, she continues her service to the community and drawing on her experience in military and public service.

“My education at USU emphasized the need to be an advocate for my patients ... That was important to me as a clinician. As a legislator, it is now just as important to be an advocate for the people in my community.”

– Dr. Rosemary Lesser, SOM Class of 1981

USU Alumnus Astronaut Frank Rubio

Army Lt. Col. (Dr.) Frank Rubio, a 2010 graduate of USU's SOM, traveled to the International Space Station on September 21 as a flight engineer for NASA's Expedition 68 – USU's second alumnus to go to space in the past three years. USU alumnus and NASA astronaut Army Col. (Dr.) Andrew Morgan accompanied the Rubio family during the shuttle launch in Kazakhstan.



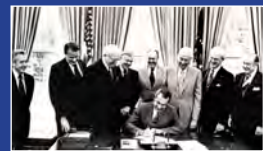
50 Years of Excellence

1945



Groundbreaking ceremony for Uniformed Services University of the Health Sciences (USU) to be built on the grounds of the National Naval Medical Center, Bethesda, Maryland. June 10, 1975. Congressman F. Edward Hebert (pictured right) is congratulated by President Gerald Ford.

1972



President Nixon signs the Uniformed Services Health Professions Revitalization act into law on September 21, 1972, establishing the Uniformed Services University of the Health Sciences.

1974



USUHS Arlington Road Office, Bethesda, MD. Dr. Anthony Curreri, President, works in his office.

1975



Bethesda, Maryland. Arlington Road offices of the Uniformed Services University of the Health Sciences. Over a bank and a drug store. circa 1975

1978



Uniformed Services University of the Health Sciences (USUHS) construction progress, nearing completion, March 1979. National Naval Medical Center in background.

1980



Uniformed Services University of the Health Sciences Commencement Exercises, Class of 1980 - USUHS Charter Class. Bethesda, Maryland Campus. Left to right: ENS Stanton K. Wesson, USNR, 2Lt Thomas T. Yasuhara, USAFR, ENS Sandra A. Yerkes, USNR, salute during the presentation of the colors.

1993

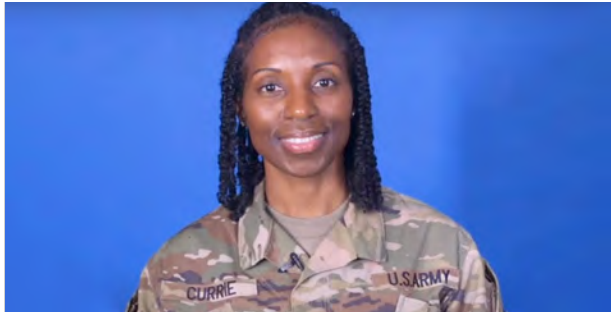


VIP guests are led on a walking tour of the university, including Senator Daniel K. Inouye (pictured second from right).

2001



Emergency response teams begin preparing triage areas outside of the Pentagon following the attack, 11 September 2001. (Photo credit: Alexandria, Va. Fire Department)



GSN Grad Lt. Col. Tanisha Currie Assumes Leadership Role at BAMC

Lt. Col. Tanisha L. Currie, a medical-surgical nurse, earned her PhD in Nursing Sciences from the GSN in 2022. She then went on to become the Deputy Chief for Nursing Science at Brooke Army Medical Center. She has focused her research on nutrition and warfighter health, and understanding the health benefits of flavonoids commonly found in fruits. She hopes to continue to assist the community in the mission of optimized warfighter health.

graduated in 2021 from the Army Postgraduate Dental School with a certificate in Periodontics and an MS in Oral Biology from USU. The award, named after the PDC's founding dean, is presented to a graduating dental student who exemplifies the core values of the dental profession, as well as excellence in service, leadership, and scholarship. Akers' research was selected as the best among his graduating class, with his work titled, "Effect of prebiotic inulin and initial probiotic optical density variations on Lactobacillus reuteri and Bifidobacterium animalis subsp. Lactis sustainability in an in-vitro biofilm model."



First PDC Faculty Member Earns Masters in HPE

In 2022, Army Col. Lisa Yarbrough was the first active-duty PDC faculty member to complete requirements for the USU Masters in Health Professions Education, Army Postgraduate Dental School. An Army Compressive Dental specialist, Yarbrough recently moved from the Director of the Tripler Comprehensive Dentistry Training Program, at Tripler Army Medical Center, to Joint Base Lewis-McChord. She is currently the Director of the



Maj. Akers Earns MG Patrick D. Sculley Award

Army Maj. Joshua Akers earned the 2021-2022 MG Patrick D. Sculley Board of Regents Award. Akers

Commencement

School of Medicine graduated the following in May 2022:

- 160 Doctor of Medicine degrees
- 26 Master's Degrees in Biomedical Sciences and Public Health
- 20 Doctor of Philosophy degrees

Graduate School of Nursing graduated the following in May 2022:

- 66 Doctor of Nursing Practice degrees
- 3 Doctor of Philosophy in Nursing Science degrees

Postgraduate Dental College graduated the following:

- 73 Master of Science in Oral Biology degrees

College of Allied Health conferred the following in 2022 to enlisted military service members:

- 755 Associate of Science in Health Sciences degrees
- 264 Bachelor of Science in Health Sciences degrees

Advanced Education in General Dentistry One-Year Residency. Her research has focused on historically under-represented racial and ethnic dental faculty at predominantly white institutions.

Retired Col. Kirkpatrick named Endodontics Chair at University of Texas

Retired Air Force Col. Tim Kirkpatrick, a former endodontist at the Air Force Postgraduate Dental School, was named chair of the Department of Endodontics in December 2022. Kirkpatrick was appointed as a USU faculty member in 2010. From 2006 until 2013, he was the program director of the Wilford Hall Medical Center Endodontics Residency, and from 2013 until 2017, he was the Keesler Medical Center Endodontics Residency program director. He

also served as the endodontics consultant to the Air Force Surgeon General from 2010 until 2017. After 25 years of service, he retired from the Air Force in 2017. Most recently, he served for several years as a director of the American Board of Endodontics (ABE), and also served as ABE president from 2020 to 2021.



50 Years of Excellence (Cont.)

2016



The College of Allied Health Sciences confers its first degree to then-Army Staff Sergeant Robert Eccles in a ceremony at the Army Medical Department Museum on Oct. 11, 2017. (Photo credit: James Pressey, USU)

2017



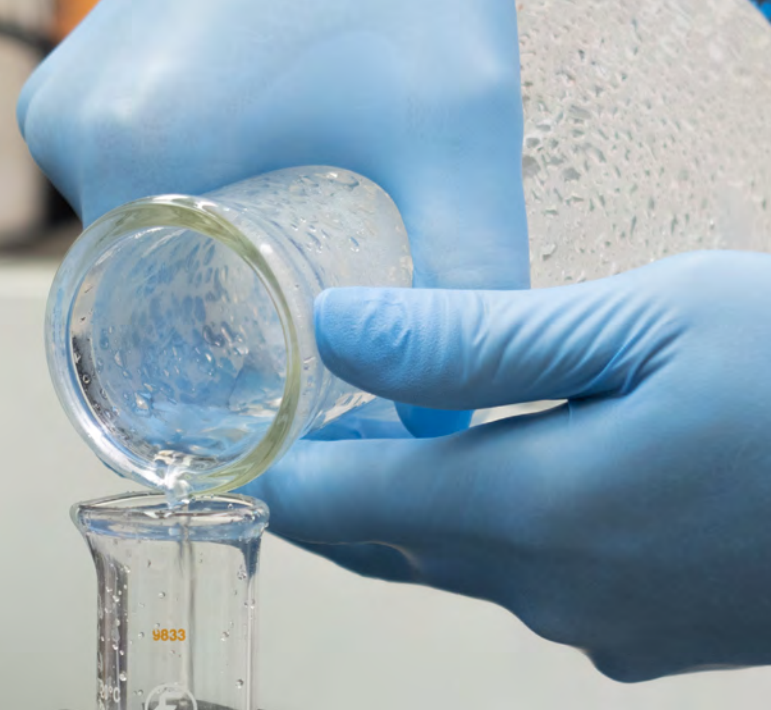
Army Lt. Col. (Dr.) Frank Rubio, a USU graduate, was selected to become a NASA astronaut in 2017. (Photo credit: Tom Balfour, USU)

2019



Army Col. (Dr.) Andrew Morgan, a USU graduate, spent nine months aboard the International Space Station in 2019. (Photo credit: NASA)

SCHOOL OF MEDICINE (SOM)



In 2022, SOM research and operational expertise continued to lead to achievements of national significance. Since its first graduating class of just 29 students, the number of SOM alumni has grown to more than 8,000, who continue to serve as leaders, scholars, and innovators, who remain committed to a mission greater than themselves. These are just a few of the countless achievements School of Medicine made in 2022.

NATIONAL IMPACT

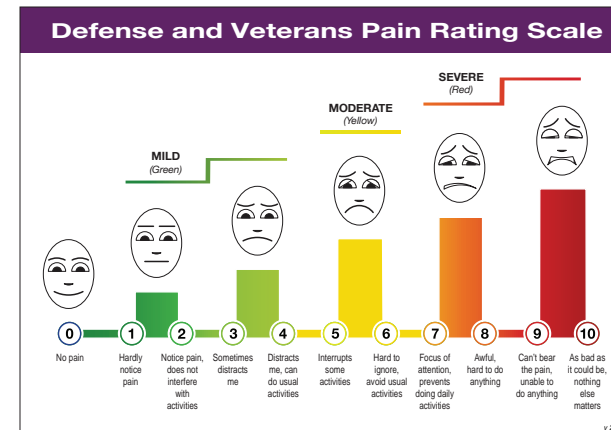
The **Murtha Cancer Center Research Program (MCCRP)** was chosen to represent the DoD to the White House's federal Cancer Moonshot 2.0, and also developed a new research program, PROMETHEUS (Project for Military Exposure and Toxin History Evaluation in US service members), which evaluates the potential role of military toxin exposures in the risk for and development of cancer. PROMETHEUS was accepted into the Cancer Moonshot 2.0 and was funded \$10M in FY22. MCCRP also hosted the May 4 DoD Cancer Moonshot Roundtable, "A Conversation on Cancer Health Equity and Military-relevant Environmental Exposures."



The **Center for Health and Military Performance (CHAMP)** helped facilitate the March 9 signing of DoD 6130.06, "Use of Dietary Supplements in DoD" after a 10-year effort, and CHAMP's "Go for Green" initiative, already an important influence on military nutrition, was highlighted in the White House National Strategy on Hunger, Nutrition, and Health.

The **Center for Health Services Research's (CHSR)** body of work on racial disparities in healthcare was twice briefed to the Defense Health Board in 2022, informing their decision to request a formal report to the Military Health System. CHSR's work on obesity and body composition also drove substantial engagement with the Army and Marine Corps, informing their decisions to update body composition standards.

The **Center for Deployment Psychology's (CDP)** STAR Behavioral Health Providers (SBHP) program expanded to cover 22 states with more than 1,000 providers enrolled in the program registry. In addition, major civilian medical centers continued to adopt the **Defense and Veterans' Center for Integrative Pain Management's (DVCIPM)** Defense and Veterans Pain Rating Scale (DVPRS) as their designated pain assessment tool.



In 2022, USU's SOM also contributed to efforts to aid our allies in Ukraine. The Center for the Study of Traumatic Stress (CSTS) and CDP developed Ukrainian-language resources for mental health providers, including fact sheets and mental health "first aid" guides; while USU faculty and alumni twice traveled to Ukraine with international aid groups to serve as volunteer trauma surgeons. In addition to the humanitarian benefit, these missions provided opportunities to update our curriculum with wartime lessons learned. USU faculty have also provided consulting and training support to Ukrainian mental health professionals. Several were named honorary members of the Association of Neuropsychologists of Ukraine: Dr. David Benedek, USPHS Capt. (Dr.) Joshua Morganstein, Dr. Wendi Waits, Dr. Curt West, and Army Lt. Col. (Dr.) Vincent Capaldi.



SOM research also addressed the health impacts of the war, including "Inadvertent Radiation Exposures in Combat Zones: Risk of Contamination and Radiobiologic Consequences," published in *Military Medicine* in July (authors: Air Force Lt. Col. (Dr.) Kirk Jensen and Dr. Vasyi Vasko).

RESEARCH

SOM advanced medical and scientific knowledge within and beyond military medicine, by publishing research

in high-impact journals, delivering presentations at respected conferences, and securing grant funding to support research on topics including COVID-19, traumatic brain injury, cancer, cardiovascular health, and racial health disparities. Below are just a few of the many innovative studies published in 2022.

Dr. David Priemer and Dr. Dan Perl, assistant professor and professor in Pathology, respectively, who both work in the DoD/USU Brain Tissue Repository, published their research, "Chronic Traumatic Encephalopathy in the Brains of Military Personnel" in the *New England Journal of Medicine*. Their findings suggest that CTE is much less common than previously believed among military personnel with PTSD who participated in contact sports, as compared to civilians.



To reduce sudden cardiac arrest and improve the cardiovascular fitness of recruits, Drs. Marc Franzos and Mark Haigney from the Department of Medicine's **Military Cardiovascular Outcomes Research (MiCOR)** program conducted advanced screening of more than 5,000 U.S. Naval Academy midshipmen in 2020 and 2021, with additional screening in 2022, covering more than 3,600 recruits at three service academies. Their results were incorporated into a Health Affairs report.

Senior MiCOR investigator Dr. Ian Stewart also led a multi-institutional team study of veterans deployed post 9/11, which found that all levels of traumatic brain injury were associated with a significant increase in the development of cardiovascular disease. This study appeared in the *Journal of the American Medical Association: Neurology*, where it ranked among the top five percent of all research scored.

As COVID-19 remained a relevant topic of research in 2022, SOM researchers continued to study its impact on public health. One particular study, "Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan: Mental health consequences and target populations," authored by Dr. Robert Ursano, Dr. Joshua Morganstein, and Dr. David Benedek, in collaboration with the National Defense Medical

College in Japan, was recognized as *Psychiatry and Clinical Neuroscience's* most-cited article during the past three years.

USU researchers also published dozens of articles addressing COVID variants, vaccine efficacy, anti-viral treatments, and long-term effects of the disease on military and civilian populations, including the **Infectious Disease Clinical Research Program's (IDCRP)** study, "Antigenic cartography of well-characterized human sera reveal differences in neutralizing capacity based on infection and vaccination history," which was published in the high-impact *Cell Host & Microbe*. IDCRP also launched two pivotal Travelers' Diarrhea (TD) studies, led by Dr. David Tribble, IDCRP science director. These studies will help determine the best non-vaccine strategy for mitigating the impacts of TD, a top threat to military readiness.

In a multi-institutional longitudinal study, "Identification of Immunopathological Features in Multisystem Inflammatory Syndrome in Children and Pediatric COVID-19," the **Center for Military and Precision Health (CMPH)** also studied the impacts of COVID on children. They identified distinct immune responses in kids who had COVID, which could better define the pathophysiology and, ultimately, help inform treatment.

The Gynecologic Surgery and Obstetrics department, led by Navy Capt. (Dr.) Monica Lutgendorf, chair of the Department of Gynecologic Surgery and Obstetrics, published and presented widely on gynecologic cancers, including "Classification of High-Grade Serous Ovarian Cancer Using Tumor Morphologic Characteristics" in the high-impact JAMA Network. The Department of Surgery, chaired by Army Col. (Dr.) Benjamin "Kyle" Potter, and SC2i, led by School of Medicine Dean Dr. Eric Elster, continued with research on trauma surgery outcomes, including "Cellular microRNAs Correlate with Clinical Parameters in Polytrauma Patients," selected by the *Journal of Trauma and Acute Care Surgery (JTACS)* as its "Best of Basic Science" Editors' Choice for October 2022.

MCCRP's APOLLO program published lung cancer research, "Proteogenomic analysis of lung adenocarcinoma reveals tumor heterogeneity, survival determinants and therapeutically-relevant pathways" in *Cell Reports Medicine*, representing the culmination of years of research arising from the federal Cancer Moonshot. The researchers used bioinformatics to connect certain molecular features of tumors with patient survivability, identifying new tumor characteristics related to immune cells and regulatory networks, which could ultimately help pinpoint which tumors may respond best to certain immunotherapies, thus improving patient treatment outcomes.

In 2022, the CSTS Suicide Prevention Program (SPP) also engaged a broad and diverse range of national, interagency, and private sector partnerships in developing cutting-edge evidence-based educational programs and resources to reduce suicidal behavior and related risk factors. The SPP established the first suicide prevention program for the U.S. Coast Guard, created a peer support program addressing firearm safety for members of the U.S. National Guard, and developed a mobile app to reduce operational stress in warfighters.

STUDENT ACCOMPLISHMENTS

The 47th SOM class started in August 2022. For the first time, female students outnumbered males (51% to 49%), with minorities representing 36% of the Class of 2026. Of the 172 new students, 58 had prior military experience, including 25 former enlisted service members who successfully completed the **Enlisted to Medical Degree Preparatory Program (EMDP2)**, including former Navy Corpsman and Purple Heart recipient Navy Ensign Timothy Bleigh.

Throughout the year, medical and graduate students excelled in academics, research, clinical training, service, and military operational support. Early in the year, Air Force 2nd Lt. Kristen Bishop, an EMDP2 student who served as an Air Force linguist, was asked to leave her clinical rotation at Portsmouth and return to Bethesda to translate for Afghan evacuees receiving medical treatment at Walter Reed. She was later awarded a Joint Service Achievement Medal for her efforts.



During an Emergency Medicine rotation at Fort Hood, medical students 2nd Lt. Matthew Brown and 2nd Lt. Melina Williman participated in the annual tri-service Joint Emergency Medical Exercise (JMEX), training in live combat casualty care with service members from 70 units across 60 medical specialties.

Graduate students also distinguished themselves with outstanding research productivity, with 2,022 graduates contributing more than 150 peer-reviewed publications to 84 journals, including high-impact

Graduate Student Outstanding Research



2,022
GRADUATES
CONTRIBUTING

...MORE THAN **150**
PEER-REVIEWED
PUBLICATIONS



...TO **84**
JOURNALS

journals such as the Journal of Pediatrics, the Journal of Orthopedic Trauma, the Journal of Bacteriology, the Journal of Biological Chemistry, and Military Medicine.

Graduate students also received prestigious fellowships and awards. Medical and Clinical Psychology (MCP) graduate students Courtney Vaughan and Matthew Thompson were awarded Ruth L. Kirschstein National Research Service Awards for their work on racial disparities in alcohol abuse during the COVID-19 pandemic (Vaughan) and the impact of brain structure and psychosocial risk factors on suicide attempt behavior (Thompson). Mariya Prokhorenko, a Neuroscience fifth-year graduate student, was awarded a Trainee Professional Development Award from the Society for Neuroscience (SfN), while Megan Parker, an MCP graduate student studying eating disorders, received the Henry M. Jackson Fellowship. Graduate students also earned high honors at the Military Health System Research Symposium (MHSRS), taking first place in both the Best Poster (MCB graduate student Major [Dr.] Simon Tallwin of the Royal Army Medical Corps) and Young Investigator (LTC Jonathan Yost, 2022 Neuroscience PhD graduate) competitions.



Not to be outdone, our medical students also earned academic recognition at the regional and national levels. Navy Ensign Bryson Hewins received a 2022

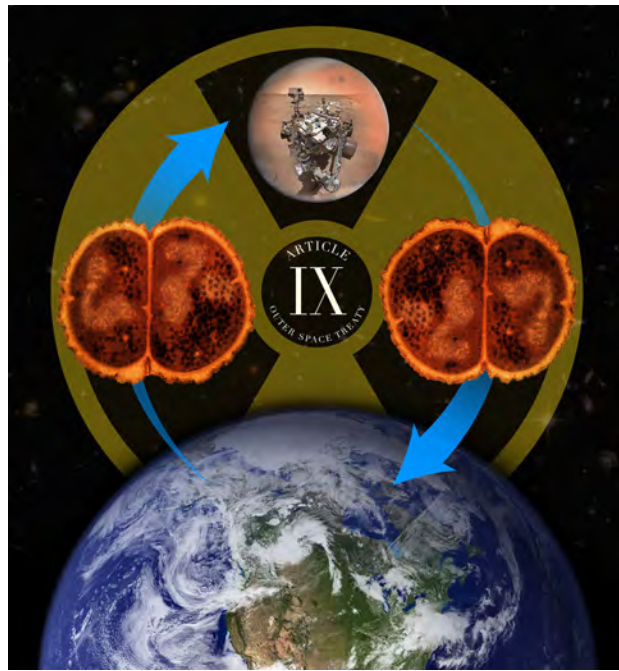
AQA Carolyn L. Kuckein Student Research Fellowship for his work on traumatic brain injury. Medical students Navy Ensigns Simon Stokes, Jessica Bailer, and Michael Goldstein, and Army 2nd Lt. Allison Watkins received the American College of Obstetricians and Gynecologists' (ACOG) Gibbons Award, which recognizes medical students who demonstrate "passion and dedication to women's health care and advocacy." The students presented at the ACOG Armed Forces District Meeting, where Watkins received the Outstanding Medical Student award, and Goldstein received the Chairman's Award.

A first for USU, several students won the National Academy of Medicine DC Public Health Case Challenge grand prize, including graduate students Remle Scott, Tonay Flattum-Riemers and Elizabeth Graydon, and medical students 2nd Lt. Amanda Dao, 2nd Lt. Jaime Mencke, and team lead Navy Ensign Patricia Theard. Additionally, several medical students were praised in 2022 for their volunteer service at the Mansfield Kaseman Health Clinic in Rockville, where they assisted in providing medical care and Spanish-to-English translation help to the clinic's low-income patients.

FACULTY ACCOMPLISHMENTS

As they have done so for the last 50 years, faculty continued to prove their dedication to education, science, and service, receiving prestigious teaching awards, while publishing and presenting cutting-edge research and serving in leadership roles throughout the military medical and research community.

In February, Dr. Michael Daly, professor of Pathology, was elected to the American Academy of Microbiology, the leadership group within the American Society for Microbiology (ASM), one of the largest life science societies in the world. He also published a study in *Astrobiology* in October that suggested if there were ever life on Mars, it would still exist today.



Dr. Naomi Aronson, professor in the Department of Medicine, was selected as the 2022 American College of Physicians Army Chapter Laureate, an award that honors a retired Army Medical Corps physician previously recognized as a Fellow or Master of the ACP, with a long-term record of excellence in clinical, academic, research, and administrative roles in the Army Internal Medicine community.



In the spring, Army Maj. Sara Bibbens, assistant professor in Pediatrics, was selected to lead the development of the Joint Trauma System's first pediatric-specific combat casualty care practice guide. She will also lead a multi-disciplinary team through the editorial and writing process.

Dr. Ann E. Jerse, a professor in the Department of Microbiology and Immunology, was appointed to a new World Health Organization (WHO) working group tasked

with prioritizing bacterial pathogens with potential for pandemic and epidemic threat. Dr. Leonard Sperling also was recognized for his research and contributions to teaching, as well as advancing the science of hair disorders, earning the 2022 David A. Whiting, MD, Leadership and Research Award from the American Hair Research Society, and the 2022 Walter R. Nickel Award from the American Society of Dermatopathology.

In December, Dr. William Kelly received the American College of Physicians District of Columbia Chapter Sol Katz Teaching Award, an annual award that recognizes excellence in medical school teaching. He also served as CHEST Congress Chair.

Dr. Paige Waterman, professor of Medicine, served as co-chair of the National Academies of Science, Engineering, and Medicine Forum on Microbial Threats workshop on the Role of Plant Agricultural Practices on the Development of Antimicrobial Resistant Fungi Affecting Human Health. Having previously received a patent (2021), Dr. Maria Braga was awarded an NIH grant (Sept 2022 - Aug 2027) for her innovative research, "Glutamatergic Therapy to Protect Against The Brain Against Nerve Agents."

Dr. Dolores "Dee Dee" Mullikin, assistant professor in Pediatrics, received the Tripler AMC COL Robert Pederson Pediatric Mentorship Award, in "wholehearted gratitude for the ceaseless dedication to the development and wellbeing of residents in this Pediatrics Residency." Dr. Vljay Singh, professor of Pharmacology, was appointed Associate Editor of *Frontiers in Pharmacology*, the most-cited journal in the field of pharmacology.

Dr. Lauren Maggio, professor of Medicine, was selected as a Faculty Advisor for the Center for Women in Academic Medicine and Science (CWAMS), which advances gender equity in academic medicine and science by supporting women seeking to advance into leadership roles. Gynecologic Surgery and Obstetrics Assistant Professor Dr. Danielle Wright also was recognized for contributions to her field, earning the Association of Professors of Gynecology and Obstetrics (APGO) Award for Excellence in Teaching.

EDUCATION

In the wake of the pandemic, USU continued to drive medical force generation through educational innovation, with expanded remote learning options and content, sharper focus on academic coaching and support, new degree offerings, and targeted efforts to address inequities. In 2022, SOM graduated more than 200 graduate and medical students, including 160 new medical doctors (MDs) now serving as physicians

in the Army, Navy, and Air Force Medical Corps, and in the Public Health Service. Masters and PhD graduates also continue conducting research and contributing to military medical and healthcare policy.

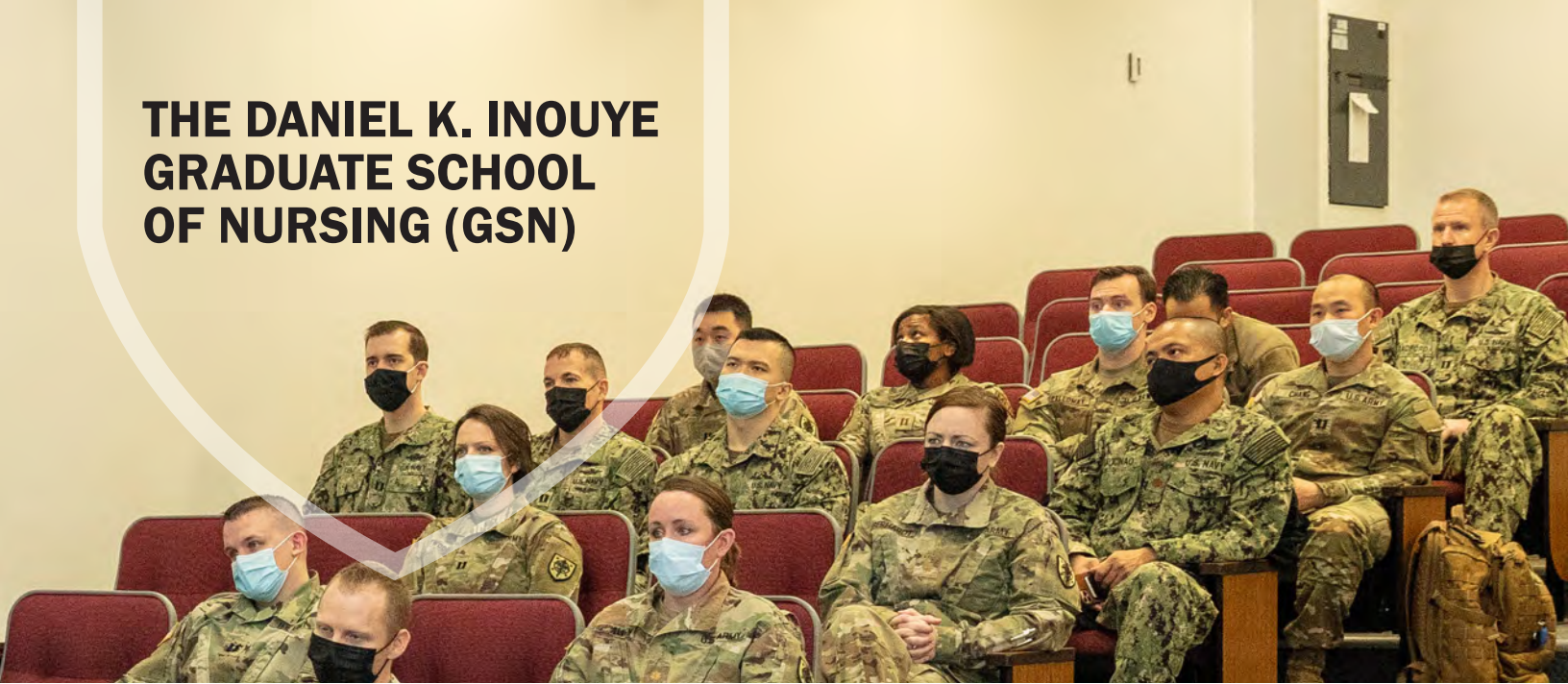
CHPE matriculated its first MD - MEd learners, and its Distance Learning Lab continued to improve virtual learning opportunities, building on distance learning innovations introduced during the height of the pandemic.

CDP also expanded its training and education content with a focus on improving access to care. More than 700 Department of Defense Behavioral Health providers were trained in evidence-based assessment and prevention of suicide and 9,821 providers completed training in a range of behavioral health interventions. CDP also developed nearly 40 hours of training content for the Sexual Assault Prevention and Response Office (SAPRO) to improve the skill of victim assistants and advocates throughout the military.

In 2022, the Department of Academic Affairs, led by Vice Dean Dr. Brian Reamy, established and launched a Longitudinal Coaching Program, designed to help medical students become master adaptive learners dedicated to lifelong educational and professional development. USU is one of very few medical schools that offer such structured coaching programs. Additionally, our Office of Student Affairs, led by Col. Pamela Williams, received the American Association of Medical Colleges (AAMC) Careers in Medicine® Excellence in Medical Student Career Advising Program Award at the AAMC Annual Meeting in November.

Clinical departments also continued to review curricular materials, identifying and correcting content containing racial or gender bias. The changes did not alter fundamental pathology concepts, but were recognized by students as a positive step toward inclusivity and elimination of bias.

THE DANIEL K. INOUE GRADUATE SCHOOL OF NURSING (GSN)



For more than 25 years, USU's GSN has continued to provide the nation with the highest quality advanced practice nurse clinicians, scientists and scholars dedicated to federal health service and health readiness. Recognized as the nation's leading nursing graduate school, the GSN has remained focused on transforming military and federal health and readiness through innovative leadership, advanced practice and nursing science. This year, GSN graduates continued to leave the university capable of meeting the current needs of our healthcare agencies, but also prepared to provide exceptional, patient-focused care in even the most challenging environments, both here at home and across the globe.

NATIONAL IMPACT



In 2022, US News & World Report 2023 Best Graduate Nursing School rankings listed the GSN Doctor of Nursing Practice Program in the top 5 percent of the 604 accredited schools surveyed. The GSN nurse anesthesia program ranked #4 of 112 accredited anesthesia programs. The school also continues its designation as a Center of Excellence™ by the National League for Nursing (NLN) for excellence in the categories of "Promoting the Pedagogical Expertise of Faculty" (2021-2025) and "Enhancing Student Learning and Professional Development" (2020-2024).

Graduating Doctor of Nursing Practice (DNP) students in the Class of 2022 also achieved a 98 percent first-time national board certification pass rate, and 12 students dual-certified as Family Nurse Practitioners (FNP) and Women's Health Nurse Practitioners (WHNP).

RESEARCH

The GSN defined five focused areas of scholarly initiatives for students and faculty, as follows:

Behavioral Health: Studies and projects included reducing the number of mental health disorders in Active Duty Service members, increasing quality of life, and expanding provider knowledge and their use of standardized, evidenced-based guidelines.

Improving Clinical Performance: Studies and projects focused on continuous process improvement, educating providers and conducting research and evidenced-based practice projects on disease prevention and management, pain management, and medication use and abuse.

Improving Patient Safety and Clinical Practice:

Studies and projects focused on improving patient safety and clinical practice, evaluating competencies for high risk procedures, implementing standardized processes, increasing knowledge, confidence, and patient satisfaction.

Medical Readiness: Studies and projects focused on improving readiness and retention of our Service members, improving wellness, enhancing performance, improving sleep quality, reducing opioid use for chronic pain and supporting brain recovery.

Women's Health: Studies and projects focused on optimizing care outcomes, on understanding health and illness related to sex and gender specific issues (contraceptive, perinatal care and newborn care, and hygiene/urogenital health).

STUDENT ACCOMPLISHMENTS

Operational readiness opportunities continued to expand. In 2022, 27 students completed the Mountain Medicine course. Additionally, 14 students completed the German Armed Forces Proficiency Badge, a proficiency that includes completing tests of strength, flexibility, and endurance and challenges in swimming, first aid, pistol qualification, nuclear, biological, chemical (NBC), Mission Oriented Protective Posture training, and basic fitness. This is one of the few approved foreign awards and is one of the most sought after awards to achieve. One gold, nine silver, and four bronze medals were awarded as follows:

GOLD

- Navy Lt. Kelsie Deisinger, Class of 2024, Registered Nurse Anesthesia (RNA)



SILVER

- Navy Lt. Robert Bradford, Class of 2024, RNA
- Air Force Maj. Brian Durant Brian, Class of 2024, RNA
- Navy Lt. Byron Fjeld, Class of 2024, RNA
- Air Force Capt. Daryll Garcia, Class of 2024, RNA
- Air Force Capt. Andrew Giaimo, Class of 2024, RNA

- Air Force Capt. Matthew Gritis, Class of 2024, RNA
- Navy Lt. Alexandra Hansen, Class of 2024, RNA
- Army Capt. Andrew Hanson, Class of 2024, RNA
- Air Force Capt. Joshua Salley, Class of 2024, RNA



BRONZE

- Army Maj. Jesse Hartmann, Class of 2023, Adult-Gerontology Clinical Nurse Specialist (AG-CNS)
- Army Maj. Gaston Baza Gaston, Class of 2023, G-CNS
- Navy Lt. Brian Dunford Brian, Class of 2024, RNA
- Navy Lt. Cmdr. David Schulte David, Class of 2024, RNA



Additionally, two Family Nurse Practitioner students joined the *USNS Comfort* in November for missions in South America. In June, several GSN nurse anesthesia students joined the FBI's Hostage Rescue Team in Quantico, Virginia, to participate in a Trauma Culmex training exercise.

Four GSN students also received funding and were recognized as Jonas Scholars, each receiving thousands of dollars in grant funding: Navy Lt. Brianna Duncan, Air Force Capt. Susan Goldsworthy, Army Maj. Tanisha Currie, and Navy Cmdr. Melissa Troncoso. Several DNP students also completed 25 projects in 16 Military Treatment Facilities, each addressing an improvement initiative in one of 5 major areas: behavioral health, women's health, medical readiness, patient safety, and clinical performance.

Additionally, among many other GSN student achievements in 2022, four PhD students completed research on effects of nutrients as cardio-protective, case management leadership, eating behaviors of enlisted warriors, and effects of stress in simulated combat.

FACULTY ACCOMPLISHMENTS

In 2022, grant funding for GSN faculty produced more than \$8.6 million for 20 research grants and scholarship initiatives. Faculty focus areas included the care of military families and veterans, adjustment disorders, service member retention, women's health care, resiliency, and operational readiness.

GSN faculty also disseminated 115 publications, presentations, and posters, and served as editorial board members or manuscript reviewers for 63 journals. GSN faculty were also recognized with Fellowships in 9 professional organizations. The GSN also led the USU Military Women's Health Research Consortium (MWHRC), which serves as a USU liaison to DoD Health Affairs Women's Health Working Group, with Dr. Lynette Hamlin and Navy Cmdr. Cubby Gardner as its Principal Investigators. The GSN also established a USU database of all USU women's health research initiatives, which serves as a trusted resource for information on women's health research at USU and helps USU investigators find and develop research partnerships for women's health.

Additionally, Air Force Lt. Col. Regina Owen, chair of GSN's Psychiatric Mental Health Nurse Practitioner Program (PMHNP), collaborated with USU's Center for Deployment Psychology to expand DoD mental health resources to healthcare professional teams.

In collaboration with AMSUS and the MWHRC, the GSN sponsored a webinar targeting Medical Corps, Nursing Corps, Medical Service Corps, Civilian Researchers, and Academicians, titled "Advancing the Health of US Service Women: Development of a Vaginal and Urinary Symptom Self-Diagnosis and Self-Treatment Kit for Deployed Military Women". The series emphasized mental and physical health topics discussed by leading experts. Specific topics included: post-traumatic stress disorder (PTSD), veteran job placement, civilian readjustment, substance use and abuse, childcare, support network availability, financial health, intersectionality and diversity, sexual harassment and assault, urogenital health, acute and chronic back pain,

equipment fit, pregnancy, menstruation, traumatic brain injury (TBI), migraine, sexually transmitted infections (STIs) and cervical cancer, permanent change of status (PCS) related lapses in health care, and musculoskeletal injuries.

EDUCATION

Four major curricular initiatives were completed this year:

1. Curricular mapping to align curriculum with new American Association of Critical-Care Nurses (AACN) Essentials: Core Competencies for Professional Nursing Education.
2. Expanded clinical partnerships to include Indian Health Service, Immigration Health Services and Lana'i (smallest major Hawaiian island) to increase student exposure to providing clinical care in austere environments.
3. Expanded inter-professional education opportunities with medical students (health system leadership) and clinical psychology students (behavioral health).
4. Completed a Military Knowledge Skills Abilities (KSA) assessment and mapping project. This was started by defining core and specialty KSAs for advanced practice nurses and mapping these to the curriculum to verify operational KSAs on graduation.

Additionally, the GSN has continued to provide an interprofessionally-crafted Battlefield Acupuncture (BFA) course for the last decade as part of its Signature Curriculum, training 500 clinicians, faculty, and staff in BFA. Courses occur annually at USU and, most recently, at Joint Base Lewis McChord in Washington State.



USU's PDC provides academic oversight to established military dental residencies across the nation. Students learn in a dynamic environment that combines education, research, and unique military opportunities, cultivating master clinicians ready to serve a mobile force at home and abroad. Graduates are military dental officers trained as master clinicians with a sound scientific background to provide the highest quality dental care to our nation's military. Every graduate is armed with an outstanding graduate dental education, a solid research background, and exceptional leadership training so they may embark on an enriching career serving our nation's men and women in uniform, fulfilling our military's operational readiness objectives.

APDS, NPDS, & AFPDS Locations



RESEARCH

Research has been an integral component of PDC's focus since its inception in 2010. Initially, the Master of Science degree was awarded in two dental disciplines, but the current spectrum has expanded to include some seven content/specialty areas. The research component of residency training is intended to augment the military's exceptional clinical dentistry platforms by providing improved understanding of common research processes and procedures. Since 2018, PDC research efforts have been focused upon five major areas deemed consequential to the Department of Defense,

and delineated in the PDC's Operational Gap Analysis. The areas are: health and human performance, prevention and safety, pain, dental materials, devices, and techniques, and technology and innovation.

PDC's research efforts are also highlighted each year within the Tri-Service Dental Research Competition. This competition features the premier projects from Army, Navy, and Air Force Postgraduate Dental Programs, and culminates with the Board of Regents Patrick D. Sculley Research Award. The winner of the 2022 Patrick D. Sculley Award was Army Maj. Joshua A. Akers, for his research titled, "The effect of prebiotic inulin and probiotic optical density variations on Lactobacillus reuteri and Bifidobacterium animalis subsp. Lactis in an in vitro biofilm model."



In 2022, PDC also began Phase II of its Smokeless Tobacco Study at Fort Bragg, NC, in collaboration with the Murtha Cancer Institute. This major research study builds upon the Phase I Smokeless Tobacco Study, conducted at Fort Bragg and Lackland Air Force Base in San Antonio, Texas, which revealed smokeless tobacco use rates of 32.5% at Fort Bragg and 11.4% at Lackland. This contrasts with a 3.4% smokeless tobacco use rate for the general population.

Since the use of tobacco products among military personnel has led to reduced physical performance, impaired night vision, increased risk of respiratory diseases, delayed wound healing, and accelerated hearing loss, this study will provide vital data for use in developing healthcare management strategies and future policies. Additionally, this Phase II study will establish a bio-specimen repository for future molecular epidemiologic studies.

STUDENT & FACULTY ACCOMPLISHMENTS

The Class of 2022 had a 100 percent completion rate for the Masters of Science in Oral Biology Program, with 100 percent alignment of its 72 graduating resident research projects.

In 2022, a Col. Wen Lien, an associate professor of the PDC, in collaboration with researchers from Joint Base San-Antonio-Lackland, was awarded a patent for inventing a self-healing dental composite with the ability to self-heal. The composite works similarly to the human body, and is made from contemporary dental filling components. It also contains healing agents that are encapsulated in nano and microsized capsules.



In 2022, the PDC developed new faculty tracks to better meet the career development needs of PDC faculty. This included developing and publishing a new USU 1100D with the addition of Educator and Clinical tracks to provide academic developmental pathways for PDC faculty teaching in residency programs with limited research missions.

Thirty-three new PDC faculty were appointed in FY2022 and eight were promoted (seven to associate professor

and one to professor). There are now 501 military dental educators holding USU faculty appointments within the PDC.

PDC faculty also continued to partake in faculty development opportunities available via the School of Medicine (SOM) Faculty Development Certificate Program, the USU's CHPE certificate and degree programs, and PDC-sponsored developmental opportunities through the American Dental Education Association (ADEA) Academy of Academic Leadership Institute for Teaching & Learning (AAL-ITL). During FY2022, 32 PDC faculty earned SOM certificates in either Teaching, Academic Leadership, or Advanced Teaching bringing the total number of SOM certificates earned by PDC Faculty to 104, since the program was re-structured in 2015. During FY 2022, 12 PDC faculty were actively pursuing completion of either a certificate (Introduction to Foundations in Health Professions Education or Foundations in Health Professions Education), Master of Education (MEd-HPE) or Master of Health Professions Education (MHPE) program offered by the USU CHPE.

EDUCATION

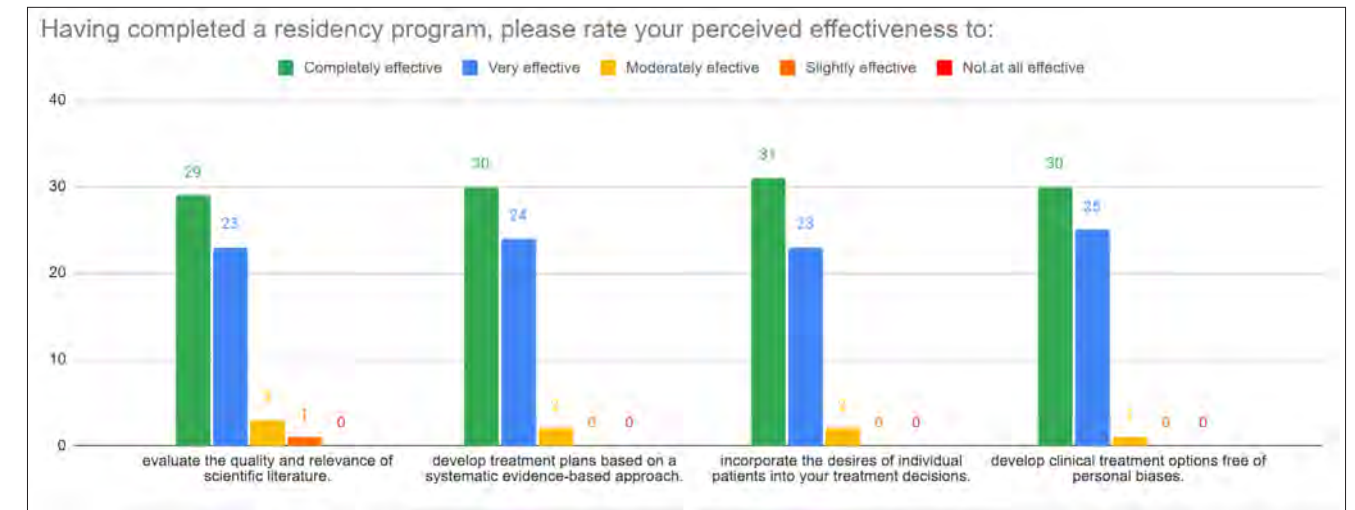
In 2022, the PDC established an inaugural PDC Faculty Development Committee, constructing sequential dental faculty orientation and development courses (DFD 1 and DFD 2), which align with USU's Center for Health Professions Education (CHPE) certificate and degree requirements. DFD 1 is designed to describe USU teaching resources available to PDC faculty and introduce them to topics deemed essential for teaching at the graduate level, while DFD 2 integrates with the CHPE Introduction to Foundations in Health Professions Education certificate requirements, providing dental-centric content.

Additionally, PDC had a 100 percent Overall Programmatic Accreditation rate for all PDC-affiliated programs since 2010. Successful American Dental Association (ADA) Commission on Dental Accreditation site visits were also completed at the following locations: Schofield Barracks – APDS Comprehensive Dentistry (MS in Oral Biology), Fort Carson – APDS Advanced Education in General Dentistry, Fort Bliss – APDS Advanced Education in General Dentistry, Fort Jackson – APDS Advanced Education in General Dentistry, and Keesler AFB – AFPDS Advanced Education in General Dentistry.

The PDC also successfully fielded a Consolidated 1-Year Post Graduation Competency Survey in support of its Long-Term Career Outcome Study (LTCOS). This consisted of transitioning the Army, Navy, and Air Force post-graduation surveys into one PDC-consolidated and standardized online survey, and aligns with dentist

competency domains established by the American Dental Education Association (ADEA). Consolidating this post-graduation survey also provides an improved means of assessing the self-perceived competency level of PDC graduates one year after graduation.

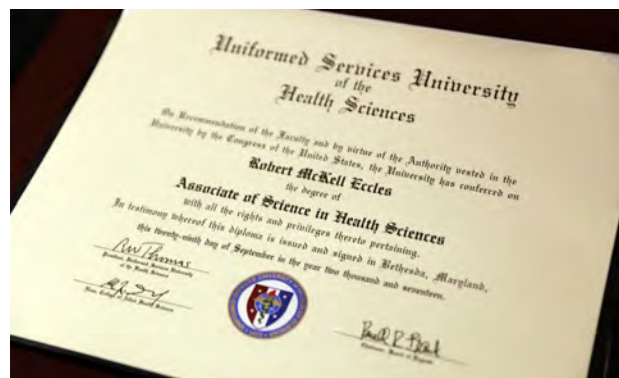
Data gathered from this survey will be incorporated into the LTCOS database for future analysis and long-term tracking of PDC graduates as they progress in their professional careers.



COLLEGE OF ALLIED HEALTH SCIENCES (CAHS)



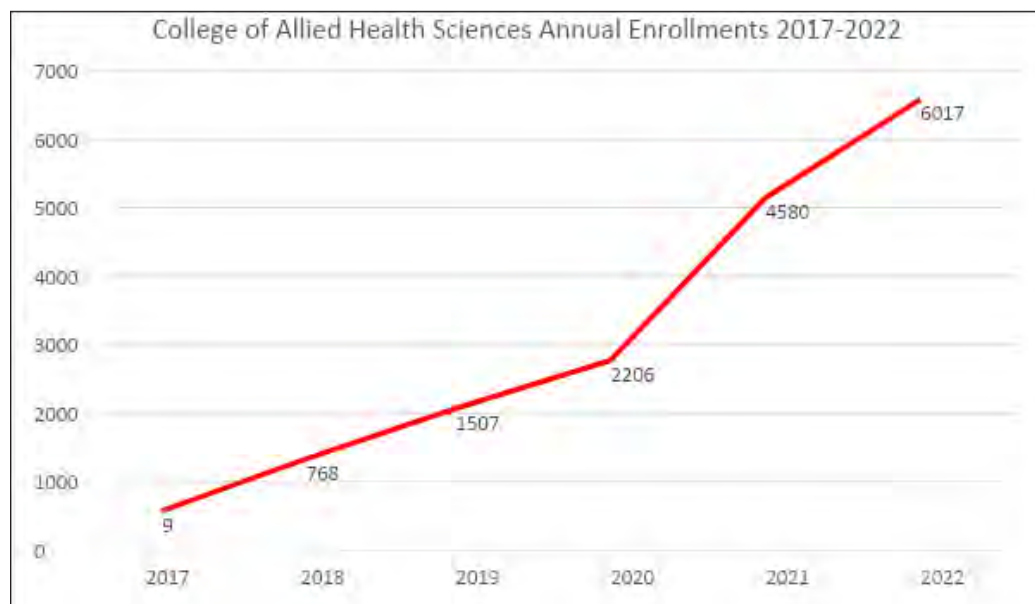
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (AFRRI)



A more recent addition to the University, CAHS was established in 2016 to provide an opportunity for the services to affiliate with USU in awarding credits and

degrees reflective of the service member's required education and training. In 2022, CAHS continued to analyze needs and identify requirements to align the college's capabilities with its mission and vision.

During the course of the year, CAHS collaboratively accomplished a complete review and revision of each of the USU Deans' Policy Memorandums. CAHS established an annual program review process to evaluate curricular updates, currency and relevance of references, verification of resourcing, and maintenance of rigor by assessing learning objectives, student activities, and educational outcomes. The maturity of the College of Allied Health Sciences was evidenced by its inaugural participation of faculty in the May 2022 USU Commencement Ceremony.



The Armed Forces Radiobiology Research Institute (AFRRI) is a unique national asset dedicated for preserving and protecting the health and performance of U.S. military personnel that operate in potential radiologically contaminated multi-domain conventional or hybrid battle spaces as well as urban environments. Through state-of-the-art research, education, and operational training, AFRRI helps to advance the understanding of the effects of ionizing radiation in line with the 21st century dynamic threat landscape and national security threats posed by non-state actors, hostile state actors, and near-peer adversaries. AFRRI also provides rapidly deployable radiation medicine expertise in response to a radiological or nuclear event occurring within and outside of the United States.

Notable Achievements Re-operationalization of the US Department of Defense's only nuclear research reactor.

AFRRI's 1.1 Megawatt TRIGA (Training, Research, Isotopes and General Atomics) reactor resumed operations on July 25, 2022, after 6 years of shutdown. AFRRI's TRIGA reactor is housed in a deep open pool of purified water and can simulate the radiation emitted from the detonation of a nuclear weapon from the prompt neutron and gamma radiation that is emitted within the first minute to the subsequent fallout radiation. With the resumption of the reactor AFRRI is able to bring in that dimension of understanding, technological support and application development, which is not only unique, but also unparalleled with respect to its capabilities within DoD.

In addition to the TRIGA reactor, AFRRI has two cobalt-60 irradiators, a linear accelerator (LINAC), computed tomography scanner (CT) and small animal radiation research platform (SARRP) systems which can simulate the fallout from a nuclear detonation and beta burns to the skin. AFRRI's core was at 75% (750kW) on August 29, 2022.

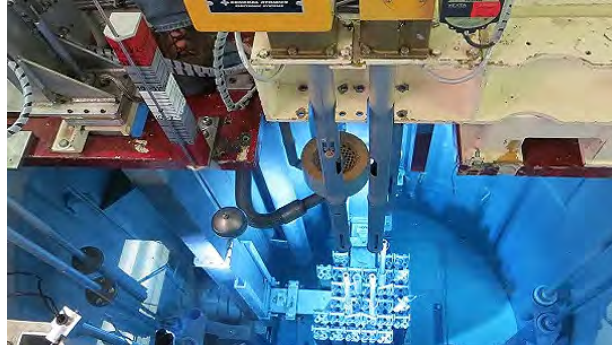
Landmark collaboration with the US intelligence community.



AFRRI has established the first inter agency agreement with Intelligence Advanced Research Projects Activity (IARPA) under Office of the Director of National Intelligence (ODNI). The objective of AFRRI-IARPA collaboration is to develop and establish novel tools and approaches to enable detection and improved quantification of low-dose radiation exposures, while also expanding knowledge associated with the

exposure environment in support of the intelligence community. AFRRRI-IARPA's Program Manager (PM) participated in a Kickoff meeting and AFRRRI also participated in a site inspection at Cyclotron 84, LBNL on September 28, 2022.

Improving Nuclear Survivability in the Arctic



AFRRRI participated in operation Arctic Eagle during US Army Alaska's exercise ARCTIC PATRIOT 2022 (26 FEB – 1 MAR). AFRRRI provided invaluable support in collecting operational data, user feedback, and role player feedback.

AFRRRI assessed operational viability of two non-aqueous technologies in performing casualty decontamination and provided subject matter expertise in refining techniques and procedures to perform non-aqueous casualty decontamination.

Medical Care Post Nuclear Detonation, a tabletop exercise supporting the COCOMS



In support of the Institute of Defense Analyses, AFRRRI conducted a hands-on tabletop exercise to provide a critical assessment of Chemical, Biological, Radiological, and Nuclear (CBRN) preparedness and response capabilities essential to the successful denial of effective nuclear weapons use through mitigation or deterrence. Models and simulation were developed to reflect scenarios relevant to battlefield planning and improve human response estimates used in Personnel Risk and Casualty Criteria for Nuclear Weapons Effects (PRCC) and other military doctrines. AFRRRI's military and civilian staff participated in a hands-on tabletop exercise.

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