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## President's Welcome

A Message from Joseph Caravalho, Jr., M.D., MG, U.S. Army (Ret.)

As President and CEO of HJF, I have the privilege of leading a talented and diverse team that carries out scientific and military medical research around the world. I'm proud to say that we have done so consistently at a high level for an impressive 40 years.

In 1983, Senator Henry M. Jackson championed the creation of HJF as an organization to advance military medicine by supporting research and education efforts at the Uniformed Services University of the Health Sciences. He envisioned this organization would become the focus of the interchange of expertise between the military and civilian medical communities.

From our humble beginnings we set out to achieve bold accomplishments, striving to live up to Senator Jackson's vision. Along the way, military medicine has made many scientific breakthroughs, and our journey positioned us in a unique and enduring role as the proverbial connective tissue linking the military medical community with federal, academic, and private partners. Our growth trajectory these past 40 years enabled us to be at the vanguard of innovations within military medical research.

HJF supports a wide variety of fields, such as military trauma, brain health, and performance optimization, all directly related to the warfighter, as well as other fields, such as infectious diseases, cancer, and precision medicine, that serve the broader military and civilian communities.

We think our legacy spanning 40 years is an accomplishment Senator Jackson would be proud of today, and we are honored our organization continues to bear his name. A 40<sup>th</sup> anniversary is notable and celebrated with the ruby gemstone—which happens to be the color used in our HJF logo. And speaking of gems, HJF has been referred to as a hidden gem, because we have remained a steadfast, enduring neighbor in Montgomery County, Maryland, while growing to become one of the largest bioscience organizations in the greater Washington, D.C., area.

From our earliest days, HJF has concentrated on our singular mission of advancing military medicine—which has never been more relevant than today. I invite you to review this Impact Report, which showcases a few of the achievements that flow from our cherished mission.

Joseph Caravalho, Jr., M.D. President and CEO

## Mission-Driven for 40 Years

To view our digital report, including videos, please scan this code.



On May 27, 1983, President Reagan signed congressional legislation authorizing the Foundation for the Advancement of Military Medicine. Five months later, it was renamed in honor of Henry M. "Scoop" Jackson, the Washington senator who sponsored the legislation. He was an extraordinarily effective leader in foreign policy, human rights, energy, education, environment, and public service. Jackson was also a strong supporter of America's armed forces and their families.

For 40 years, HJF has carried out the three clear objectives laid out in the law:

- To carry out medical research and education projects under cooperative agreements with the Uniformed Services University of the Health Sciences (USU)— "America's Medical School;"
- To serve as the interchange between military and civilian personnel; and

For the two tends to a new a new first a new first and the segment legislation 40 years age that led to our authorization. Revenue shown in our annual reports rose from \$200,000 (1964) to \$546 million (2022). We are provid of the fact that 98.6 percent of our expenses support the results.



• To encourage the participation of people and organizations in biomedical sciences for the mutual benefit of service members and society.

HJF began on USU's campus in Bethesda, Maryland, where it administered two federally sponsored research projects. Throughout the years, HJF grew, adding new services dedicated to managing clinical trials, serving sponsored programs, and transferring technology from bench to bedside. It expanded internationally, with critical research on HIV, malaria, and enteric diseases. Humanitarian assistance medicine and combat wound care, as well as care for invisible injuries like post-traumatic stress, were added to its portfolio. This growth resulted in a move to new headquarters—first to Rockville, Maryland, and then, in 2011, to be closer in proximity to some of its clients, back to Bethesda.

No matter where HJF is located, our research benefits not only service members, but also the public at large. Military medicine leads worldwide scientific endeavors that impact and influence the broader scientific community, and ultimately, global health.

HJF stands today—40 years after our humble beginnings—with 41 research sites domestically, as well as operations in six continents and 17 countries. We are extremely proud that 98.6 percent of our expenses go to the mission.

To provide historical context, the growth stories of key HJF programs are featured in the following pages.



**Merlin Robb, M.D.** Senior Vice President and Chief Medical Officer

Since 2002, Dr. Robb has been dedicated to serving HJF's mission. He advises HJF leadership and employees on all medical and public health matters. Learn about his impressive contributions to HJF by viewing his video.

## Then and Now: U.S. Military HIV Research Program

### Then

The U.S. Military HIV Research Program (MHRP) at Walter Reed Army Institute of Research (WRAIR) began in 1986 with an initial focus on clinical diagnosis and treatment of this complex, new disease threat. Given the military's expertise in infectious diseases, MHRP was created at WRAIR and was at the forefront of HIV diagnostic development, produced the first HIV disease staging system, and guided an integrated clinical care and prevention program which maintained HIV infected active personnel on active-duty status. At that time, MHRP was largely staffed by military clinicians and researchers with a handful of HJF researchers and support staff.

In the 1990s, the program grew in scope and diversity to develop and test novel vaccine strategies in the U.S. and abroad. HJF was the primary partner to manage that exponential growth and the majority of the scientific staff were (and still are) HJF. In 2004, the program doubled in size and expanded its international footprint when it began supporting the President's Emergency Plan for AIDS Relief (PEPFAR) programs in Africa.





#### Now

Today, HJF's work with WRAIR spans four continents as we develop and test vaccines and other biomedical interventions not only for HIV, but also Lassa, Ebola, Zika, and COVID-19. The PEPFAR program extended into Southeast Asia, and MHRP's portfolio expanded into HIV cure research. HJF's Global Infectious Diseases portfolio continues to broaden its services to help defeat current and future infectious diseases threats through support of the Emerging Infectious Disease, Diagnostic and Countermeasures, and One Health Branches at WRAIR. The team encompasses an HJF staff of more than 300 in the U.S. and 430 internationally.

## Then and Now: Infectious Disease Clinical Research Program (IDCRP)

The Infectious Disease Clinical Research Program (IDCRP) was founded in 2005 through an interagency agreement between the Department of Preventive Medicine and Biostatistics at the Uniformed Services University of the Health Sciences, the National Institute of Allergy and Infectious Diseases (NIAID), and HJF (through a cooperative agreement) to address clinical infectious disease research needs of the U.S. military.

#### Then

In the early years of IDCRP, the program employed approximately 50-80 HJF professionals across 10 partner clinical sites and focused on two research areas: HIV/ Sexually-Transmitted Infections and General Infectious Diseases.

Through the years, significant military and public health events—including the wars in Iraq and Afghanistan and the H1N1 and SARS-CoV-2 pandemics—have shaped the research priorities and initiatives of IDCRP.

As IDCRP has evolved to reflect the changing needs and priorities of the Military Health System, the program has continued to receive support from NIAID and the Defense Health Agency, as well as other key stakeholders.

#### Now

Currently with four research areas consisting of HIV/ Sexually-Transmitted Infections, Acute Respiratory Infections, Deployment and Travel-Related Infections, and Wound Infections, IDCRP has more than 100 HJF employees (over 170 HJF employees during the height of the pandemic) across more than 35 partner clinical sites, along with ongoing collaborations with academia, industry, and other government partners.

During the SARS-CoV-2 pandemic, IDCRP was instrumental in supporting the Defense Health Program's response to the pandemic by collecting and analyzing crucial data on SARS-CoV-2 infections in active-duty military and DoD beneficiaries through the prospective, longitudinal, observational Epidemiology, Immunology and Clinical Characteristics of Emerging Infectious Diseases with Pandemic Potential (EPICC) study.

IDCRP was also a collaborator on NIAID's international, multicenter Adaptive COVID-19 Treatment Trials (ACTT), enrolling active-duty service members and DoD beneficiaries in the trials.

With the goal of informing influenza vaccine strategies, IDCRP recently completed a multi-year trial evaluating the effectiveness of different influenza vaccine formulations. Since travelers' diarrhea is common among deployed service members, IDCRP, in collaboration with the United Kingdom Ministry of Defence, conducted a clinical trial assessing the effectiveness of treatment with different single-dose antibiotic regimens (azithromycin, levofloxacin, and rifaximin) with adjunct therapy (loperamide). Findings from this trial supported development of the clinical practice guideline for the management of acute watery diarrhea in deployed military personnel. Currently, a follow-on trial evaluating the efficacy of a lower dose of rifaximin to treat travelers' diarrhea is underway.

Research on HIV continues to be an important priority for the Military Health System, and findings from IDCRP HIV-related studies informed recent revisions to DoD HIV policy to remove restrictions on deployments/commissions for HIVpositive service members who are asymptomatic with a viral load that has been clinically confirmed to be undetectable.

Sexually-transmitted infections are also a concern for the Military Health System, and a clinical trial in collaboration with NIAID Division of Microbiology and Infectious Diseases, University of Alabama Birmingham, and others to evaluate the efficacy of the Bexsero® meningococcal vaccine for protection against gonorrhea infections is underway.

Among combat casualties, wound infections are a substantial source of morbidity and mortality. The Trauma Infectious Disease Outcomes Study (TIDOS) is the largest study of battlefield-related trauma and infectious outcomes.

Data collected from TIDOS on the outbreak of invasive fungal wound infections (IFIs) that occurred among personnel critically wounded in Afghanistan directly supported the initial and subsequent refinements of the Joint Trauma System clinical practice guideline on managing IFIs in war wounds.

There is also a considerable burden from communityassociated skin and soft-tissue infections (SSTI) caused by Staphylococcus aureus in congregate populations, particularly military trainees. IDCRP conducted a clinical trial to examine the effectiveness of the NDV-3A vaccine (NovaDigm Therapeutics, Inc.) for protecting against nasal acquisition of S. aureus and subsequent SSTI development. These highlights represent only a small fraction of IDCRP's achievements and contributions toward improving the health of service members and DoD beneficiaries over the years.

## Then and Now: Murtha Cancer Center and Research Program (MCCRP)

The Murtha Cancer Center was established in 2011 to implement and establish a medical capability that will enable the Military Health System (MHS) to effectively and efficiently support a medically-ready force and provide world-class cancer services for the MHS as well as other mutually beneficial partnerships within the federal government.

### Then

When the Murtha Cancer Center was established in 2011, its original staff totaled 13 and its research facilities consisted of 85,391 square feet. In 2012, the Murtha Cancer Center became the only designated Department of Defense (DoD) Cancer Center of Excellence.



#### In 2016 (and again in 2022), Murtha

Cancer Center Research Program (MCCRP) joined President Biden's National Cancer Moonshot initiatives to "eliminate cancer as we know it." The President's address recognized the "The world-class Murtha Cancer Treatment Center at the Walter Reed National Military Medical Center, with support from NCI, provides a multidisciplinary approach to offer the highest standards of care for treating cancer diseases." A total of 46 active research protocols addressing cancer in the military have been established.

The following MCCRP high-level studies originated from the Cancer Moonshot:

APOLLO (Applied Proteogenomics Organizational Learning and Outcomes) – This project is designed to utilize state-of-art methods in genomics (DNA, RNA) and proteomics to analyze cancerous tissues, germline DNA, clinical data, pathologic data, and imaging data collected under existing Murtha Cancer Center, Clinical Breast Care Project, and CPDR biobank protocols at all of the IRB-approved tissue source sites.

**DoD Framingham** – A retrospective analysis of longitudinal serum samples collected over the course of a subject's military active component service and stored at the DoD's Serum Repository (over 62 million specimens). Cutting-edge proteomics research is being used to identify serum biomarkers indicative of disease states to develop early diagnostic tools and prognostic indicators, which may be used to inform treatment decisions and improve survival. This study compares serum markers of active-duty cancer patients to cancer-free controls at points prior to diagnosis, during the course of treatment, and during post-treatment surveillance.

#### Now

Now MCCRP consists of 154 HJF employees in 169,864 square feet of research facilities. MCCRP remains the only designated DoD Cancer Center of Excellence.

In 2018, the Defense Health Program Charter established the Murtha Cancer Center Research Program to improve the diagnosis and multidisciplinary treatment of DoD cancer patients through innovative clinical research, care, and education. The Murtha Research Network, which was formed to support cancer research and cancer clinical trials, has grown to include nine Military Treatment Facilities, seven Veterans Affairs Medical Centers, and two Civilian Medical Centers, and a consolidated biobank across the United States.

MCCRP is nationally recognized for its commitment to continually improve the quality of cancer care provided to DoD beneficiaries. The number of IRB-approved research protocols has risen to over 80 per year. MCCRP scientists produce over 125 referenced research papers and published abstracts every year.

While continuing to focus on APOLLO and Framingham, MCCRP is now conducting the PROMETHEUS (PROject for Military Exposures and Toxin Evaluation in U.S. service members), which arose out of the White House's National Cancer Moonshot 2022 initiative. PROMETHEUS integrates federal scientific platforms with public-private innovators to study the impact of servicerelated exposures to environmental contaminants and toxin hazards. Its goal is to discover advanced precision oncology technologies that will enable prevention, early detection, and enhanced treatments of cancers arising from these exposures to military service members.

PROMETHEUS will integrate scientific platforms of the DoD, VA, Department of Energy (DOE) and National Institutes of Health (NIH), especially the National Cancer Institute (NCI) and National Institute of Environmental Sciences (NIEHS), and other civilian and academic entities to meet some of these challenges. The effort includes creating a process and research ecosystem to integrate or link individual-level datasets of exposures and phenotypic information, conducting research studies that leverage exposure data, phenotypic data, and biospecimens, which are unique to the DoD. PROMETHEUS also engages the DoD Joint Pathology Center (JPC) repositories that include war-related registries with slides and/or tissue samples from more than 54,000 patients across multiple military conflicts. These registry cases are ideally suited for studying toxic exposures and their impact on service member and veteran health, especially when test data are analyzed in conjunction with other relevant clinical and exposure data. The Post Deployment Health Services/Health Outcomes of Military Exposures (PDHS/ HOME), a VA-Delivered Core Service, assesses the impact of deployment and environmental exposures on veterans and develops related policy, research, education, and healthcare strategies. PDHS consists of interrelated programs and activities in epidemiology, environmental health, warrelated illness and injury studies, centers for embedded fragments and depleted uranium, and toxicology expertise is another scientific program that may be incorporated.

DoE Pacific Northwest National Laboratory (PNNL) and DoD collaborations have novel mass spectrometry (MS) capabilities that have been applied to various DOE and NCI biology questions and have identified protein biomarkers in serum that have the potential to function as early diagnostic markers or predictors of disease recurrence and will now be turned to the scientific questions being studied in PROMETHEUS.

The PROMETHEUS project is established to bring federal assets together with public-private partners to further study these important questions of potential environmental and toxin exposures with a focus on future prevention and mechanisms of disease development that may enable early detection or enhanced precision treatments of cancers arising in such circumstances.

# Then and Now: Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO)

#### Then

The Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO) was started in 2010. Its mission is to improve survival for patients with severe infections and sepsis through development of host-based diagnostic and prognostic assays and evidence-based clinical management. ACESO is focused on developing solutions to guide clinical decision-making in settings where a modern intensive care unit is not available, including military deployments to areas with long medical evacuation chains, medical centers in lowand middle-income countries, and pandemic or other public health emergency settings.

To accomplish this mission, ACESO established an international network of clinical research sites in five countries spanning three continents. Subjects were enrolled in an observational study of patients with suspected sepsis in hospitals in Cambodia, Ghana, Liberia, Uganda, and the United States. ACESO established deep relationships with host country institutions, enrolled more than 3,000 subjects in our observational studies.



#### Now

ACESO continues to discover host-biomarkers of severe infections and sepsis utilizing advanced data analytics and artificial intelligence/machine learning, set up an intuitive clinical data management system, transition host-biomarkers to point-of-care devices that are being validated at host country institutions, publish peer-reviewed manuscripts of the scientific community and finally, expand our observational studies in severe infections and sepsis to Madagascar and Peru.

Given ACESO's experience and expertise in the management of severe infections, they—along with other partners—are implementing observational and interventional trials for COVID-19. They have launched a Master Protocol for Early Treatment and Post-Exposure Prophylaxis of COVID-19 Adaptive Platform Trial (PROTECT-APT) in the United States and across the globe, onboarding therapeutics to COVID-19 and will expand to influenza-like Illnesses and additional acute respiratory infections.

ACESO's efforts seek to provide a continuum in severe infections and sepsis management leading with translational biology bridging it to diagnostics and adaptive clinical care with global application to any resource-limited setting. Their approach will fundamentally change how civilians and military personnel are assessed and managed, resulting in improved patient outcomes.

Advancing Military Medicine for 40 Years

## Then and Now: Center for Military Precision Health (CMPH)

The Center for Military Precision Health (CMPH) evolved from the Collaborative Health Initiative Research Program (CHIRP) and PRIMER. This work began in 2014 when the National Heart, Lung, and Blood Institute and the Uniformed Services University of the Health Sciences (USU) agreed to jointly develop a Genome Center. More than 150,000 whole genome sequences have now been performed.





#### **EMPLOYEE SPOTLIGHT**

Joshua Chenoweth, Ph.D. Director, Experimental and Translational Biology, ACESO

"Dr. Josh Chenoweth is a brilliant scientist and inspirational team member. He is the Professor you always wanted. Dr. Chenoweth is very thoughtful, deliberate and communicative. He takes time to explain the intricacies of research activities

to the team and is quick to respond if anyone has a question or needs assistance. Dr. Chenoweth is extremely dependable. He will roll up his sleeves to get the work done, no matter what the ask. He has been a critical team member in establishing and operationalizing Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO) COVID-19 research efforts—developing the science, partnerships and testing plan support response efforts and a large portfolio of funded efforts."

Carlyle Gollogly, ACESO

## Then and Now: The Military Traumatic Brain Injury Initiative (MTBI<sup>2</sup>)

#### Then

Traumatic brain injuries (TBIs) have been called the "signature wound" of the wars in Iraq and Afghanistan. To study the debilitating effects of these injuries, the Center for Neuroscience and Regenerative Medicine (CNRM) was created in 2008.

Between the years 2000 to 2022, more than 470,000 U.S. service members were diagnosed with TBIs. This number, in a more tangible perspective, is slightly less than the 2021 census population of Atlanta, Georgia. And while both wars have since concluded, TBIs remain a widespread, looming threat to the U.S. military.

#### Now

Fifteen years after CNRM came into existence, it was relaunched in August 2023 as the Military Traumatic Brain Injury Initiative (MTBI2). MTBI2 has expanded its research portfolio to investigate TBIs of all severities and all causes yet, narrowed its focus to study early timepoints after injury.

As a joint federal research organization, MTBI2 develops scientific solutions to help diagnose, prognose, and treat service members with TBIs more quickly and accurately. Examples of these scientific solutions in application are objective biomarkers for TBI diagnosis, practical and easy-touse knowledge products for prediction of TBI outcomes, and personalized treatment methods to optimize TBI recovery in patient subgroups.

MTBI2 continues to forge ahead with its new name in the ageold fight against TBIs. Its central mission remains unchanged.



## Then and Now: Center for Deployment Psychology (CDP)

The Center for Deployment Psychology (CDP) is a tri-service consortium headquartered at the Uniformed Services University of the Health Sciences (USU). Since it began in 2006, CDP has remained an innovative education and training center, training thousands of behavioral healthcare professionals annually on topics including military culture, evidence-based psychotherapies, suicide prevention, and more.







## Then and Now: Center for Rehabilitation Sciences Research (CRSR)

The Center for Rehabilitation Sciences Research (CRSR) was established in 2011 to promote the advancement of rehabilitative care with an emphasis on war-casualty care.

#### Then

- Funded by a congressional mandate that reallocated Research Development Test & Evaluation (RDT&E) funds and established as a USU Center by the USU Board of Regents.
- Established collaboration with University of Pittsburgh (UPitt) Human Engineering Research Laboratory (HERL) to co-host State of the Science Symposia.
- Demonstrated success in managing and executing 22 initially funded projects.

#### Now

- Staff grows to 35 HJF team members across 10 sites.
- Participates in and co-host State of the Science Symposia semi-annually (providing more than 50 CME/ CEU).
- Co-authored more than 100 peer-reviewed publications.
- Presented over 120 seminars and posters.
- Authored 15+ book chapters.
- Featured in 20 press releases.
- Issued more than 50 academic appointments.

- Supported development of patient-centered website (WithinReach) on upper limb transplantation developed using research supported by CRSR.
- Researchers study biopsychosocial effect of service dog training on post-traumatic stress (PTS) and postconcussive Symptoms. The multi-site prospective trial of the effects of a service dog training program to reduce social isolation, increase in physical activity, and reduce mental health symptoms. Preliminary results demonstrate reductions in post-traumatic stress and anxiety symptoms.
- The Concussion Assessment Research and Education (CARE) Consortium integrated study follows former CARE and SALTOS participants (n>55,000) beyond graduation to evaluate the long-term or late effects of head impact exposure and/or concussion/mild traumatic brain injury for over 10 years or more after initial injury or exposure, while continuing assessment of proteomic, genomic, and neuroimaging biomarkers. Funding totaled \$42.65 million for this multi-site, multiple protocol partnership among HJF, USUHS, Indiana University, University of Michigan, and Medical College of Wisconsin.
- Actively seeking new opportunities for collaboration and funding externally.

# HJF and the Uniformed Services University of the Health Sciences: An Enduring Partnership

When Congress authorized the nonprofit organization that would later become HJF, it stipulated as one of its core functions to "support medical research and education projects with the Uniformed Services University (USU) for the mutual benefit of military and civilian medicine." Today, HJF continues to be closely aligned to USU as we continue to support its work and serve as an interchange between military and civilian medical personnel.

In its earliest days, HJF was housed on the USU campus in a small two-room office. In 1984, HJF hired its first two employees and added a bookkeeper in 1985, and focused on establishing endowments for USU. By the end of HJF's first decade, nearly 650 employees worked at HJF. The unique partnership with USU continued to grow, sharing a strong shared purpose.

#### WHERE WE WORK

Uniformed Services University (main campus) 570 International Locations (including HJFMRI) 444 Teleworker 427 HJF Leased Space 405 HJF Home Office 250 Walter Reed Army Institute of Research 149 Walter Reed National Military Medical Center 121 Other DoD Clinical 102 Naval Medical Research Center 71 San Antonio DoD Sites 50 Other DoD Lab 26 Naval Medical Center San Diego 23 Wright-Patterson AFB 21 National Institutes of Health 12 Naval Medical Center Portsmouth 12 Other Non-federal 9 Other Federal 7

In addition to broad program and administrative support, HJF collaborates with USU every year on Research Days, which is an annual campus-wide research conference where students, fellows, and research staff are invited to present their work. Postdoctoral fellows and other researchers are encouraged to participate by presenting at a poster session or by delivering talks at a postdoctoral colloquium.

The mission of Research Days is:

- To promote and highlight research by students, postdoctoral fellows, and research associates at USU and its affiliate institutions,
- To provide opportunities for interdisciplinary collaboration, and
- To facilitate communication among USU graduate students, faculty, researchers, and staff at the USU, Walter Reed National Military Medical Center and the National Institutes of Health.

Additionally, in June, HJF provided support for a STEM Summer Camp at USU. Junior program instructors welcomed approximately 150 middle school students to a four-week camp designed to inspire and empower them to pursue potential careers in science, technology, engineering, or mathematics

Kali Holloway, HJF Program Manager III, served as a driving force in supporting this STEM initiative. The HJF junior program instructors assisted the students with 3D printing, robotics, virtual reality, social entrepreneurship, and other hands-on technology. On the last day of camp, the students presented their projects.

"I am proud to be a part of the HJF team supporting a STEM summer camp to middle school children in our community that may not have this opportunity otherwise," said Stacey Zeno, Director of USU Centers and Large Programs, who managed the program.



## Notable Awards in FY2023

### HJFMRI's Fred Sawe Receives James Hakim International Investigator Award

Dr. Fred Sawe, Senior Deputy Director for HJFMRI in Kericho, Kenya, was awarded the 2023 James Hakim International Investigator Award by the AIDS Clinical Trials Group (ACTG) for his long-standing research contributions and ongoing impact in developing Kericho as an elite HIV study site. This highly prestigious award reflected his tireless and selfless work to motivate, educate, and inspire staff at all levels of training and experience to achieve world-class research in HIV/AIDS treatment.



The ACTG is composed of, and directed by, leading clinical scientists in HIV/AIDS therapeutic research. As one of the largest HIV clinical trials organizations in the world, the ACTG plays a major role in setting standards of care for HIV infection and diseases related to HIV and AIDS in the United States and the developing world.

"The international cadre represented by ACTG includes most of the elite academic sites doing infectious disease research," said Dr. Merlin Robb, Senior Vice President and Chief Medical Officer. "Dr. Sawe was recognized among a very accomplished peer group."

### The Henry M. Jackson Fellowship Award Presented for 2023

Each year, the Henry M. Jackson Fellowship Award provides one year of salary and travel support for an outstanding senior USU School of Medicine graduate student working to complete their Ph.D. dissertation work. This year, Nancy Sealover, a fifthyear student in the Molecular & Cell Biology Ph.D. Program at



Nancy Sealover

USU, received the 2023 Henry M. Jackson Fellowship Award. Under the mentorship of Dr. Robert Kortum in the Department of Pharmacology & Molecular Pharmacology, Ms. Sealover is investigating novel and combinatorial therapeutic approaches in RAS-mutated lung adenocarcinoma and pediatric cancers. In collaboration with investigators at the National Cancer Institute and Boehringer Ingelheim, Nancy has contributed to nine publications to date and presented her work at numerous local and national meetings. She has also been recognized for her exceptional service to the USU community and beyond, including substantial leadership positions.



Two other students, Rohini Manickam and Arielle Pearlman, also received honorable mention. Ms. Manickam works in Dr. Jeremy Rotty's laboratory in the Department of Biochemistry, where she studies how the Phactr4 protein interacts with the Arp2/3 complex to coordinate proteomic changes associated with cell migration. Ms. Pearlman works in Dr. Natasha Schvey's group in the Department of Medical and Clinical Psychology. She studies the longitudinal impact of weight-based discrimination on eating pathology among youth from diverse racial and ethnic backgrounds, with an emphasis on Latine families.

### HJF Funds Proposal Program for CSION Fellows

The Clinician Scientist Investigator Opportunity Network (CSION) program develops active-duty clinicians into the next generation of gifted clinician-scientists. Through a Technology Transfer Agreement, HJF and the 59th Medical Wing (MDW), which is the U.S. Air Force's largest medical wing and is the Air Force functional medical command for Joint Base San Antonio, developed a seedling proposal program to fund two research projects through a competitive selection process for CSION Fellows. HJF provided \$50,000 to fund two recipients.

### Two USU Fellows Receive Travel Awards

Two USU fellows were recognized for work they presented during a postdoctoral colloquium at USU Research Days. Each of them received a certificate and a generous travel award to attend a conference of their choosing. For fellows looking to pursue academic careers, awards like these are tremendously supportive.

Dr. Atul Agrawal won for his poster titled "Development of Engineered Peanut-specific Regulatory T cells (Tregs) for Suppression of Peanut-Specific IgE Mediated Mast Cell Degranulation." He is an HJF Scientist 1 working in the Department of Medicine in the laboratory of Dr. David Scott.

Dr. Andrew Clark, an ORISE (Oak Ridge Institute for Science and Education) fellow, was recognized for his oral presentation titled "Evaluation of a Polyvinyl Alcohol Hydrogel as a Muscle



Void Filler for the Delayed Treatment of Volumetric Muscle Loss." He is part of the HJF supported Extremity Trauma and Amputation Center of Excellence (EACE), in the department of Surgery. His group has focused on developing regenerative medicine treatments for musculoskeletal injuries, especially those caused on a battlefield.

"I'm delighted that HJF could support the training and education of these young scientists," said Dr. Andrea Stahl, Vice President of USU Operations, who presented the awards.

### HJFMRI Program Award from President of Tanzania

HJFMRI was awarded for its support of people who use and inject drugs (PUID) through Medicated Assisted Treatment Clinics. Dr. Chalamia accepted the award from the President of United Republic of Tanzania for HJFMRI, which implements PEPFAR supported HIV care and treatment programs in Tanzania and has developed outreach programs with key populations such as PUID, given their high risk of becoming infected with HIV.

### HJFMRI Superhero: Hamada Shaban

For his invaluable contribution to Tanzania's successful vaccination campaign for COVID-19, HJFMRI employee Dr. Hamada Shaban was recently honored by the U.S. Embassy in Dar es Salaam. The recognition was for his work on MHRP's PEPFAR-funded vaccination campaign in the Southern Highlands region of Tanzania.

To honor each "Hero of the Fight Against COVID-19," the embassy hosted a special event. A local artist rendered honorees as comic book-style superheroes for artwork displayed at the Heroes Night event, which included a screening of the Tanzania premier of the movie Wakanda Forever.

Thanks to the work of Dr. Shaban and the other honorees, vaccination rates exceeded their target goals in three of the four South Highland regions. A total of more than 2.9 million clients received COVID vaccinations across all four regions in Tanzania, where MHRP, WRAIR and HJF have been supporting HIV prevention care and treatment since 2004.

In a congratulatory email, Kim Bohince, HJF Director of Global Health, wrote: "Congratulations, Dr. Shaban! You are indeed a superhero!"



### Diversity, Equity, and Inclusion at HJF

Diversity, Equity, and Inclusion (DEI) at HJF aims to foster a work environment that nurtures trust and community while supporting the development of a rich, productive corporate culture.

Organizations with a healthy, thriving corporate culture have a much broader appeal to top candidates in their chosen fields. These candidates become employees who feel valued and are more likely to dedicate themselves to their work and stay on long-term, and when people with a wide range of life experiences come together to share their unique perspectives, a more agile and innovative environment results.

HJF has established Diversity, Equity, and Inclusion as a forward-facing program with several platforms providing multiple avenues for involvement for HJF employees.

Mentorship, empowerment, cooperation, and support are the driving forces behind HJF's DEI programs, such as the Employee Resource Groups (ERG), which are linked by a common interest and work toward advancing employee advocacy, professional development, growth, and visibility.

## HJF's Employee Resource Group's Mission Statements:

#### WIL'N (Women's Inclusion & Leadership Network)

Women's Inclusion & Leadership Network's mission is to represent the interests of current and aspiring women leaders in the workplace, and support HJF's overall diversity and inclusion goals.

## MERGe2 (Millennial Employee Resource Group, empowered and engaged)

The mission of the Millennial Employee Resource Group (MERGe2) is to provide members with the inspiration and support to develop their professional skills and build their future at HJF. A guiding principle behind MERGe2 is the merging of generational experiences of all HJF employees to the benefit of us all, but especially HJF Millennials as they grow professionally.

#### **BLAC' (Black Leadership Alliance Council)**

The mission of the Black Leadership Alliance Council (BLAC) is to create an inclusive environment, contribute to diverse education and celebration, as well as provide support and mentorship to members through awareness, engagement, and opportunity.

#### **Scientific Network**

HJF Scientific Network ERG's mission is to represent the interests of the scientific community, and support HJF's overall diversity and inclusion goals. Its vision is to make HJF a place where the scientific network from various disciplines and career levels are able to meet informally to promote collaboration, dialogue, and sense of larger HJF community.

#### **AccessAbilities**

AccessAbilities' mission is to represent the interests of those with and without physical/mental disabilities/chronic health conditions, and support HJF's overall diversity, equity and inclusion goals.

# HJF By the Numbers



# Top 10 Largest Programs (by spending)

1	U.S. Military HIV Research Program (MHRP)
2	Infectious Disease Clinical Research Program (IDCRP)
3	Murtha Cancer Center Research Program (MCCRP)
4	Austere environment Consortium for Enhanced Sepsis Outcomes (ACESO)
5	Center for Military Precision Health (CMPH)
6	Center for the Study of Traumatic Stress (CSTS)
7	Military Traumatic Brain Injury Initiative (MTBI2)
8	Center for Deployment Psychology (CDP)
9	DoD Infectious Diseases Research Directorate (DIDD)
10	Center for Rehabilitation Sciences Research (CRSR)

# Top 10 Largest Programs Support (by number of employees)

1	Military HIV Research Program	
2	Infectious Disease Clinical Research Program	
3	Murtha Cancer Center Research Program	9
4	Simulation Center	GUEST SPEAKERS
5	Diagnostics and Countermeasures Branch	
6	Consortium for Health and Military Performance	
7	Infectious Diseases Directorate	860+
8	Military Traumatic Brain Injury Initiative	PARTICIPANTS
9	Center for Deployment Psychology	
10	Austere environment Consortium for Enhanced Sepsis Outcomes	

#### DEI BLOGS | ERG ACTIVITIES | LUNCH & LEARNS

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**EVENTS** 

VIEWS

# Our Impact

HENRY AL JACKSON FOLINDATION

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FY2023 Impact Report

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Our Impact

## HJF Hosts 13<sup>th</sup> Annual Heroes of Military Medicine Awards

HJF hosted its 13th annual Heroes of Military Medicine Awards on May 11, 2023. The special event brought top military medical researchers and practitioners together to salute those who have made exceptional contributions to military medicine. With the support of the Chairman Sponsor, Humana Military, HJF recognized the heroes who have advanced medicine for our nation's warfighters, veterans, and civilians.

"HJF holds a deep appreciation and high regard for these true military medical heroes," said Joseph Caravalho, Jr., M.D., HJF President and CEO and retired Army Major General. "Since 2010, HJF has celebrated men and women who exemplify commitment to military medicine for those who need it most—whether warfighters, veterans, or civilians. Congratulations to each for their extraordinary achievements."

Each year, three awards are presented to active-duty military medical professionals, one each from the Army, Navy, and Air Force, with nominations coming from the Services' respective Surgeon General. Additionally, honorees are recognized with the Military Medicine Ambassador Award, Military Medicine Civilian Award, and Military Medicine DHA Award.

The 2023 Heroes of Military Medicine Award Honorees were:

- Mrs. Hollyanne Milley (Civilian Honoree)
- Mr. Benjamin Hall, Correspondent for FOX News (Ambassador Honoree)

The Heroes of Military Medicine Honorees were:

- Colonel (Doctor) Benjamin "Kyle" Potter (Army)
- Lieutenant (Doctor) Anna Rayne (Navy)
- Major (Doctor) Jonathan Henderson (Air Force)
- Andrew D. Bloom, M.D. (DHA)





# Leadership Forum Discusses Transition from Service Member to Veteran

In November, the HJF Leadership Forum convened nearly 50 leaders from the federal government, academia, and private industry to discuss the challenges service members face as they transition from active duty to veteran status. The semi-annual gathering encourages coalition-building on topics vital to the health and medical readiness of the U.S. military. Invited speakers at this forum included:

- The Honorable Terri Tanielian
   Special Assistant to the President for Veterans Affairs
   The White House
- The Honorable Donald M. Remy Deputy Secretary of Veterans Affairs U.S. Dept of Veterans Affairs
- Dr. Daniel Perkins
   Professor of Family and Youth Resiliency and Policy
   Principal Scientist, Clearinghouse for Military Family Readiness
   Penn State
- Dr. Dawne Vogt
   Research Health Scientist, VA Boston Healthcare System
   Professor of Psychiatry, Boston University

Drs. Perkins and Vogt were lead researchers of The Veterans Metrics Initiative (TVMI), a multiyear longitudinal observational study led by HJF that explored programs veterans accessed during their transitions and how those were related to veterans' well-being outcomes.

HJF hosts leadership fora to foster discussion and action plans among public and private organizations on many topics to advance military medicine for service members and civilians alike. Invited guests include leaders from the U.S. Department of Defense and other federal agencies, as well as executives from private industry and foundations, such as Humana Military, Kaiser Permanente, Johnson & Johnson, Walmart, Lockheed Martin, Leonardo DRS, and the Wounded Warrior Project.



## A World-Class Convening Space

As part of its mission, HJF is broadening its capabilities for convening, facilitating, and educating. Over the past year, HJF has coordinated over 300 meetings in the service of military medicine. The goal is to foster discussion among public and private organizations on topics related to military medicine for service members and civilians alike, consistent with the Congressional statute authorizing HJF's creation.

The crown jewel of the convening strategy is the HJF conference facility, anchored by the Bethesda auditorium space opened in 2022 to host meetings of the Uniformed Services University of the Health Sciences and other leaders within the military medical community. This award-winning 4,000 square foot space has state of the art facilities such as three large LED display screens, multiple cameras (one stage facing and two audience facing) and push to talk microphone capabilities.



The Henry M. Jackson Foundation for the Advancem... 34,749 followers 3w - 🕲

We had an amazing turnout at our networking reception last night! A great big THANK YOU to everyone who joined us at #MHSRS2023



HJF hosted a reception at MHSRS





## HJF Signs CRADA with Defense Health Agency

In July, HJF and the Defense Health Agency (DHA) signed a master Cooperative Research and Development Agreement (CRADA), as did two other nonprofit foundations (Geneva and Metis). The CRADA was signed by Dr. La Shaun J. Berrien, HJF Senior Vice President of Research Administration & Innovation Management, and Robert J. Bolluyt, Director, Technology Transfer & Intellectual Property, Deputy Assistant Director for Acquisition & Sustainment, Assistant Director – Support, Defense Health Agency.

A CRADA is a written agreement that facilitates research and development (R&D) collaboration between one or more federal laboratories and one or more non-federal entities. The newly signed DHA Master CRADA gives HJF the authority to enter into grants, contracts, other transactions, material transfer agreements, non-disclosure agreements, and clinical trial agreements directly with the research sponsors (federal and non-federal).

"This new process will speed up the CRADA process considerably," said Dr. Stephen Dalal, HJF Vice President of U.S. Research Development. "It reduces the number of parties to each CRADA from three to two and allows HJF to directly negotiate with these sponsors and not have to wait for an individual CRADA office at a site to review each agreement."



### **EMPLOYEE SPOTLIGHT**

Nathiea Jacks Diversity, Equity & Inclusion (DEI) Manager

"Nathiea Jacks has done a fantastic job of bringing diversity, equity, and inclusion (DEI) to the forefront of HJF. Since arriving in February 2022, she has started six Employee Resource Groups (ERGs), created our first DEI

monthly newsletter, and also organized DEI cultural events, Lunch & Learn sessions, and so much more. Nathiea is a wonderful asset to HJF!"

- Kristin Smith, Human Resources

Our Impact



#### **EMPLOYEE SPOTLIGHT**

Nasreen Jahed Director of Clinical Operations, MTBI<sup>2</sup>

Nasreen Jahed is an excellent mentor and advocate for our research staff. She has brought a lot of energy and knowledge to the center. Even though she is a director, Nasreen is extremely collaborative and maintains

strong relationships with staff at all levels, from the research assistants to the investigators. She has garnered a reputation as a problem solver and excellent communicator. Nasreen has fostered a culture of advocacy and collaboration, ensuring that teams apply to as many exciting scientific opportunities as possible. Our research teams have successfully presented at multiple conferences and symposia, with the entire team from bachelor's-level to doctorate-level as co-authors and co-presenters. We have also successfully activated two major and novel randomized control trials under her leadership.

 Elizabeth Diaz Nelson, Clinical Research Manager, Center for Neuroscience and Regenerative Medicine

### A New Way to Identify and Treat Lung Cancer

*Cell Reports Medicine* published a study that provides insight into identifying aggressive lung cancers, as well as their most effective treatments. Led by researchers at the Uniformed Services University for the Health Sciences (USU), the study shows that collective analysis of proteins and genomes may improve prognosis, treatment, and diagnostics for this lethal disease.

The study—"Proteogenomic analysis of lung adenocarcinoma reveals tumor heterogeneity, survival determinants and therapeutically-relevant pathways"—was part of the Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) network. Launched in 2016 in response to the White House's Cancer Moonshot initiative, APOLLO is led by USU's Murtha Cancer Center (MCC)/Research Program (MCCRP) and is a collaboration between the National Cancer Institute, the Department of Defense, and the Department of Veterans Affairs. HJF co-authors on the study include Anthony Soltis, Nicholas Bateman, and Xijun Zhang.

Lung cancer is the leading cause of cancer deaths globally and a top cause of cancer deaths in the Military Health System. The most common type of lung cancer is lung adenocarcinoma (LUAD) and the study involved 87 LUAD tumors from the United States.

The research team analyzed the process through which genes (DNA) are converted to the messenger transcript (RNA) in cells to make proteins. When things go wrong during the process of making proteins, healthy cells can turn into cancer. Using whole genome sequencing, RNA sequencing, and proteomic profiling, researchers were able to connect certain molecular features of tumors with patient survivability. These findings could help better predict a patient's outcome and offer improved diagnostics for their treatment.

To read the study in *Cell Reports Medicine*, see <u>https://www.cell.com/cell-reports-medicine/fulltext/</u> S2666-3791(22)00378-0.

## From Stigma to Pride, a Family Saved by HJFMRI's PEPFAR-Funded HIV Treatment Services

Since 2003, HJF Medical Research International (HJFMRI) has supported the U.S. Military HIV Research Program at the Walter Reed Army Institute of Research in implementing HIV prevention, care and treatment services funded by the President's Emergency Plan for AIDS Relief (PEPFAR) in four African countries. In 2023, HJFMRI staff in Kenya reconnected with a family they began supporting nearly 20 years prior and saw how early access to care and treatment services changed the course of their lives.

David, Joyce, and their two children became a poster family for PEPFAR in 2007 when they were featured on the cover of the program's annual report to Congress, but their journey with HJFMRI began in 2005. The couple was expecting their second child when David discovered he was living with HIV. The day after he found out his status, David brought Joyce to get tested. That day, Joyce, who was four months pregnant at the time, discovered she also had HIV. She was put on a single dose of Navirapine to prevent mother-to-child HIV transmission, and five months later the couple welcomed a healthy, HIV-free son. David was also placed on treatment, which at the time involved five pills twice daily. Due to her HIV status, Joyce was unable to breastfeed her newborn. Because of this setback, neighbors felt the boy "would amount to nothing," Joyce said. Due to community stigma associated with their diagnosis, the family felt forced to move soon after their son was born.

This year marks the 20th anniversary of the PEPFAR program, and thanks in large part to the program's ongoing commitment, living with HIV today is much different than when David and Joyce were diagnosed. With improved treatments, HIV is no longer a death sentence, and stigma around the disease has decreased in many communities.

Now, David noted, "I only take one pill per day. There are no side effects. There is no stigma. I appreciate the progress that has been made over the last 18 years." With a big smile on his face, David is proud to show off a school report with high marks for their youngest son, whose prospects were so disparaged in infancy.

David has worked for PEPFAR for more than 10 years as a community advocate and as a mentor, counseling children on antiretroviral therapy. For David and Joyce, PEPFAR saved their family. "Thanks to the PEPFAR program," Joyce said, "my children are living a healthy life, HIV free."



## Antibody Discovery Research Could Provide Powerful Tools to Fight HIV

Broadly neutralizing monoclonal antibodies (mAbs) show promise for the prevention and treatment of HIV, and they may be particularly useful in military settings. HJF supports the U.S. Military HIV Research Program (MHRP) at the Walter Reed Army Institute of Research in laboratory discovery research to identify potent antibodies and clinical development of engineered mAb products targeting HIV.

As HIV mutates to evade immune detection, some people produce antibodies that neutralize a wide variety of HIV strains. Researchers are working to optimize these HIVspecific antibodies to make them more potent and longer lasting. The ultimate goal is to have a mAb product that can be administered to individuals via injection or infusion, offering an immediate immune boost for prevention or even a potential cure strategy. A key application is the prevention of HIV transmission during life-saving blood transfusions on the battlefield in settings where blood donors may not be screened for HIV.

Scientists in MHRP's B cell immunology laboratory, with support from HJF, have identified two novel mAbs, MHRP01 and MHRP02, from study participants living with HIV. Further research has shown these mAbs to be broad and potent against a diverse panel of HIV strains. The lab continues to use next-generation methods to identify and advance promising candidates. MHRP is also collaborating to evaluate experimental mAb products in preclinical and early phase clinical trials. In Thailand, researchers are working with the Aaron Diamond AIDS Research Center to design bispecific mAb constructs with the potential for HIV prevention. Biospecific antibodies are engineered to have two different sites in one molecule that act to block virus entry. These molecules offer an alternative to cocktails of multiple antibodies.

MHRP is also planning a Phase 1b trial of a bispecific antibody in people with HIV to inform development for HIV pre- and post-exposure prophylaxis. The trial, which will be conducted at the National Institute for Medical Research at the Mbeya Medical Research Center in Tanzania, will test combinations of a novel bispecific antibody and an antibody developed by the National Institutes of Health Vaccine Research Center.



# **1980**s

May 27, 1983: President Ronald Reagan signs congressional bill authorizing the creation of the Foundation for the Advancement of Military Medicine.

**1983:** First office opens on campus of the Uniformed Services University of the Health Sciences (USU) in Bethesda, Maryland

**1984:** One of the first studies HJF supports at USU uses laser technology to study protein structure and function by examining how molecules fold. This work helps researchers understand and predict how a protein folds and functions, allowing them to make new proteins to improve quality of life.

**1987:** Home office moves from USU campus to new location in Bethesda.

**1988:** The U.S. Military HIV Research Program—the single largest program supported by HJF—is created when Army awards a five-year grant to HJF to provide collaborative scientific, technical, and management expertise.

# 2000s

**2000:** In partnership with USU, HJF establishes the John W. Lowe Joint Office of Technology Transfer (JOTT) to help scientists expedite novel inventions, devices and technologies to possible patenting and commercialization.

**2001:** HJF Medical Research International (HJFMRI), a wholly-owned subsidiary of HJF, is established.

**2003:** Launch of PEPFAR (the U.S. President's Emergency Plan for AIDS Relief) by President George W. Bush

**2004:** HJF ranks among top five percent of institutions receiving funding from the National Institutes of Health.

**2006:** HJFMRI Ltd./Gte., a subsidiary of HJF, is created for HJF research in Nigeria.

2008: HJF celebrates its 25th anniversary.

**2009:** RV144 HIV vaccine trial in Thailand, supported by the Military HIV Research Program and HJF, demonstrates for the first time a modest ability to protect against HIV infection.

**SU TECHN** 

## CELEBRATING 40 YEARS (1983-2023)

# 1990s

**1991:** Home office moves to new location in Rockville.

**1992:** First annual Research Day at USU sponsored by HJF.

**1992:** John W. Lowe appointed President and CEO.

1994: HJF opens its Clinical Trials Office.

**1994:** HJF begins long-term collaboration with the Fisher House Foundation, which provides

"a home away from home" for service members, veterans, and their families who are

receiving medical treatment at a military or VA

hospital.

**1994:** Licensing agreement signed with GlaxoSmithKline to develop pneumococcal vaccines and vaccines against meningitis.**1995:** HJF employees are now located at 62 military sites.

**1996:** HJF begins program management support of new Global Emerging Infections Surveillance and Response System, established by the DoD after a Presidential Decision Directive by President Clinton.

**1998:** Two fellowships—the Henry M. Jackson fellowship and the Dr. Val G. Hemmings fellowship—created for USU doctoral students.

## **2020s**

**2020:** Dr. Gordon Joyce, HJF employee and Chief of Structural Biology at the Walter Reed Army Institute of Research, produces the most detailed atomic level view of the structure of the SARS-CoV-2 spike protein receptor binding domain—the part of the virus that binds to the lungs.

**2020:** HJF acquires CAMRIS International, LLC, an international development and health research firm.

**2020:** HJFMRI awarded \$1.3 million by the Bill & Melinda Gates Foundation to support research on COVID-19 in pregnant women and newborns in Western Kenya.

**2020:** USU/HJF Joint Office of Technology Transfer award ("Public Health Impact: Countermeasures for Highly Pathogenic Emerging Henipaviruses") from the Federal Laboratory Consortium. **2021:** The Washington Business Journal recognizes HJF as the second largest bioscience employer in the greater Washington, D.C., area.

**2022:** New auditorium opens at Home Office in Bethesda, Maryland.

**2023:** HJF signs MoU with TEDCO (Maryland Technology Development Corporation) as part of its expanding innovation ecosystem initiative.

**2023:** HJF celebrates its 40th anniversary, with 13,850+ awards managed, nearly 3,000 employees, 17 global locations, and \$546 million in revenue, with 98.6 percent of expenses going to our mission of advancing military medicine.

YEARS

TIMELINE

## . 2010s

**2010:** To honor men and women who have made exceptional contributions to military medicine, HJF establishes Heroes of Military Medicine Awards.

**2011:** Home office moves to current Rocklege drive location in Bethesda, to be closer in proximity to partners such as the Uniformed Services University and the National Institutes of Health.

**2013:** USU/HJF Joint Office of Technology Transfer wins first of six consecutive "Excellence in Technology Transfer" Awards from the Federal Laboratory Consortium.

**2015:** Distinguished Service Award presented to HJF by Military Officers Association of America.

**2015:** Distinguished Service Award presented to HJF by Military Officers Association of America.

**2015:** HJF launches five-year study named The Veterans Metric Initiative: Linking Program Components to Post-Military Well-Being (TVMI Study).

2016: HJF opens a new regional office in Nairobi, Kenya to bolster HJF and HJFMRI programs in the area and improve assistance to sub-Saharan African programs.
2017: John W. Lowe retires after 25 years at HJF. Joseph Caravalho, Jr., M.D., MG, U.S. Army,

Ret. becomes President and CEO. **2019:** Washington Business Journal selects HJF for its "Best Places to Work" list.

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### **EMPLOYEE SPOTLIGHT**

Julie Dorsey-Spitz Deputy Director, Clinical Operations Office

"Julie is very patient and always willing to teach me or offer guidance when I reach out to her. She is an excellent resource and investigators frequently ask her questions. Julie is definitely an expert in her field. A big plus for me in working with her is the opportunity

she provides by exposing me to different parts of clinical trials management, which is essential to my professional and career development. She reminds me, whenever I'm unsure about something, to check if the goals of the activity are in line with HJF's mission."

Curtisha Charles, Clinical Operations Office

## Helping Service Members in Coalition Environments Recognize Non-Native Speech

Research into better understanding the challenges facing operators in noisy warfare coalition environments for service members who have hearing impairments and those who do not, has led to the discovery that service members are able to improve their recognition of native and non-native accented English speech within a short period of time. With practice, service members show robust retention of learning.

Rebecca Bieber, Au.D., Ph.D., an HJF Research Audiologist at the National Military Audiology and Speech Center, Walter Reed National Military Medical Center, is working with a group of international researchers who are trying to better understand the challenges facing operators in warfare coalition environments and learn how to help them overcome auditory challenges, such as communication with non-native speakers or in noisy environments. She is leading ongoing efforts to develop rapid training to improve communication readiness before personnel are deployed to coalition operations.

During coalition warfare, efficient and effective communication is crucial among international teams. Personnel in situations with very high levels of noise are at risk for communication breakdowns, which can have serious impacts on the mission. These noisy and international language environments can be even more of a challenge for personnel with hearing impairments. "One critical thing that we have found as we conduct this research is the robust learning of non-native accented speech," said Bieber. "We see this on both shorter and longer time scales. In one study where we had participants listen to a large number of sentences over several days, we saw substantial improvements in speech recognition from day to day, with participants maintaining performance from the end of one session to the start of the next. We found this quite promising: it seems like, within a short period of time, service members can rapidly improve their ability to understand non-native accented English speech."



## Walter Reed Army Institute of Research's Pilot Bioproduction Facility Progresses with CAMRIS Support

CAMRIS, an HJF subsidiary, has continued to excel at delivering results at the Walter Reed Army Institute of Research (WRAIR) Pilot Bioproduction Facility\* (PBF). The team has helped make significant progress in clearing internal manufacturing commitments, expanding systems, and optimizing facility utilization. Through its prototype other transaction authority (pOTA) program, CAMRIS developed rapidly during this period, with expanded staff and capacity, and increased sustainment funding vital to mission success.

#### **PBF Project work**

PBF completed the National Institutes of Health Malaria vaccine, a key deliverable, during the first quarter of the fiscal year, in time for Phase 1 trials in west Africa. This was the first pilot-scale production at PBF and the first Pichia pastoris recombinant fermentation and purification since the renovation (pOTA).

PBF's Vaccine Manufacturing group successfully completed non-Current Good Manufacturing Practices non-cGMP and cGMP Najit Technologies (NTI) flavivirus and alphavirus contract development and manufacturing. PBF parlayed these NTI successes into business capture of a \$7 million NTI alphavirus vaccine program CRADA funded by the Defense Threat Reduction Agency. PBF will make four bulk drug substances (BDS), including the Chikungunya (CHIKV) vaccine and three additional chimeric viruses, and then blend these into a single, alum-formulated drug product. The scope of this platform tetravalent alphavirus vaccine also includes method development cell banks and manufacturing development.

The Center for Disease Control and Prevention (CDC) visited PBF and HJF headquarters in June for a tour and rotavirus technology transfer meeting. PBF's Viral Diagnostics and Assay Development (VDAD) manager co-presented work on the rotavirus conference in Singapore, and work was initiated on the second phase of the multi-year interagency agreement. The second phase of work conducted at PBF was initiated, and process development activities included the characterization and development of the iCELLis continuous bioreactor system. CAMRIS drove the implementation of this technology per pOTA objectives to significantly expand WRAIR PBF's productivity for rotavirus and other adherent viral vaccine programs. Another major achievement was the manufacturing and release of three WRAIR ALFQ lots (or advanced derivative of the ALF vaccine adjuvant originally designed, manufactured, and tested in the Army in the 1980s), which are critical to many WRAIR programs, including the Military HIV Research Program. PBF also completed and released cell banks and drug substances for the Center for Infectious Disease Research Shigella vaccine and Salmonella vaccine programs.

### **PBF** Capabilities Enhancement

PBF staff have built and expanded key relationships throughout WRAIR and vertically integrated several critical core development and manufacturing capabilities. PBF is a key partner with WRAIR and MHRP leadership in establishing mRNA bench-to-bedside vaccine capability. PBF established the equipment and much of the small and intermediate-scale mRNA manufacturing inclusive of plasmid production and in vitro transcription process steps. Additionally, PBF initiated and established a cell line development program in FY23, which is on track to integrate stable cell line development and cell banking vertically, enabling cost reduction and efficiency for future WRAIR and MHRP therapeutics and vaccine programs.

\*PBF is a WRAIR owned and operated facility.



## Antibodies from the Aquarium: HJF-Supported Collaboration Advances Nano-Sized Antibodies Derived from Sharks for COVID-19 Prevention

HJF supports work by the Walter Reed Army Institute of Research (WRAIR) to research and develop monoclonal antibody products that help detect, prevent, and treat COVID-19. A research collaboration led by HJF structural biologist Dr. Gordon Joyce is working on new antibody technologies for human pandemics that come from a surprising source: sharks.

Some animal families, including llamas, camels, and sharks, produce antibodies with binding domains that are less than a quarter of the size of binding domains from conventional antibodies found in humans. These "nanobodies" can work inside cells and be delivered to tissues in the body that larger antibodies can't reach. Their exceptionally small size and high stability also make it easier for researchers to develop into countermeasure products.

The Joyce lab collaborated with a team at the University of Maryland School of Medicine, immunizing nurse sharks with experimental SARS-CoV-2 vaccines. The vaccines elicited a set of unique nano-sized antibodies that broadly neutralize a range of viruses in the SARS-CoV family and confer passive immune protection in a preclinical animal challenge model.

Researchers then analyzed the structure of the nanobodies to identify the specific binding properties of each group. Using this structural information, they designed a set of multi-specific antibodies. The small size of the nanobodies also allows for them to be inhaled through a nebulizer, which provides direct respiratory delivery of these important molecules. These new nanobodies could provide greater protections against SARS-CoV-2 viral variation, and may be used to develop future diagnostic, therapeutics, or preventive countermeasures.



Our Impact



### **EMPLOYEE SPOTLIGHT**

Hua Wei Chen Deputy Director, Clinical Operations Office

"Dr. Chen is a scientist at the Diagnostic and Surveillance Department in the Naval Medical Research Command. He is a wealth of knowledge and our in-house subject matter expert for various pathogens, such as Leptospira, Bartonella, Rickettsia, and

Orientia. His scientific career has been very fruitful with various patents and publications under his name. Even so, Dr. Chen is very humble as displayed by his generosity as a mentor and extraordinary patience in teaching junior members and intern students in the lab. I cannot think of anyone more deserving to be highlighted here than my esteemed colleague, Dr. Hua-Wei Chen."

- Victor Sugiharto, Naval Medical Research Command

# Estimating the Effect of COVID-19 Vaccination on Long COVID Risk

A team from the Infectious Disease Clinical Research Program (IDCRP) at the Uniformed Services University of the Health Sciences (USU) conducted research to better understand the risk and risk factors of post-COVID-19 complications. By early 2020, it was already noted that patients with COVID-19 frequently reported symptoms that persisted for months after infection, which is now generally described as post–COVID-19 conditions (PCCs) and colloquially known as "Long COVID." PCCs have been associated with fatigue, shortness of breath, joint pain, anxiety, depression, and other symptoms.

Using data from the IDCRP Epidemiology, Immunology, and Clinical Characteristics of Emerging Infectious Diseases with Pandemic Potential (EPICC) study implemented in the Military Health System (MHS), the researchers studied MHS beneficiaries aged 18 years or older who tested positive for SARS-CoV-2 from Feb. 28, 2020, through Dec. 31, 2021.

Led by Dr. Stephanie Richard, IDCRP/HJF Biostatistician/ Epidemiologist, and Dr. Simon Pollett, IDCRP/HJF Associate Science Director (on behalf of the EPICC study team), the researchers identified characteristics associated with persistent post–COVID-19 symptoms and described post– COVID-19 medical encounters. In their paper ("Persistent COVID-19 Symptoms at 6 Months After Onset and the Role of Vaccination Before or After SARS-CoV-2 Infection") published in *JAMA Network Open*, 20.3 percent of those who were unvaccinated and 15.8 percent of those who were vaccinated reported any long-term symptoms (p=0.04). The risk of reporting symptoms for 28 or more days after COVID-19 onset was significantly higher in participants who were unvaccinated at the time of infection (risk ratio = 1.39, 95 percent Cl 1.04, 1.85), as well as those who reported moderate or severe acute illness symptoms (moderate symptoms risk ratio = 1.80, 95 percent Cl 1.47, 2.22; severe symptoms risk ratio = 2.25, 95 percent Cl 1.80, 2.81). Interestingly, the study team further noted that receipt of vaccination after COVID-19 (in those who were not previously vaccinated) was also associated with a reduction in the risk of persistent symptoms (risk ratio for post-infection vaccination = 0.59, 95 percent Cl 0.40, 0.89).

The EPICC study also examined healthcare encounters after COVID-19. At six months after illness onset, participants had significantly higher risk of pulmonary, diabetes, neurological, and mental health associated healthcare encounters compared to their pre-infection healthcare history. The study team further noted that those who were unvaccinated prior to infection were more likely to have medical encounters for pulmonary and neurological diagnoses out to six months after COVID-19 (risk ratio for pulmonary category healthcare encounters = 1.72, 95 percent Cl, 1.32, 2.27; neurological category risk ratio = 1.27, 95 percent Cl, 1.00, 1.59).

Their findings suggest that PCCs are a significant risk to MHS beneficiaries who experience COVID-19, with implications for the healthcare systems that treat them. These observational data offer further evidence that pre-infection vaccination may mitigate PCC risk. The study team concluded that the finding of post-infection vaccine mitigation of Long COVID risk should be replicated in other studies, and put forward several hypotheses about this finding, including whether post-COVID-19 illness vaccination may reduce chronic inflammation or viral persistence.

## Research Team Explores Cystic Fibrosis for COVID-19 Treatment



A team of HJF investigators examined the causes of COVID-19 and potential treatments. Titled "COVID-19 Airway Inflammation Is Due to Spike Inhibition of CFTR Signaling," the work makes it possible to pursue new therapies for COVID-19 by furthering our understanding of

the CFTR protein that is related to cystic fibrosis.

The research team, led by Harvey Pollard, M.D., Ph.D., a professor in the Department of Anatomy, Physiology, and Genetics at the Uniformed Services University for the Health Sciences (USU), has been studying cystic fibrosis for decades. "When patients are infected by the SARS-CoV-2 virus, the body experiences a cytokine storm that is very similar to the type we see in patients who have cystic fibrosis," Pollard said, referring to the severe immune reaction when the body quickly releases too many cytokines into the bloodstream. "This led us to further explore this connection." Most antibodies for COVID-19 attempt to block the first point of contact between the virus and a cellular receptor protein in the lungs, which adversely affects the CFTR protein. Pollard and his research team recently identified several cardioglycoside drugs (digitoxin, ouabin, and digoxin) that also block this interaction.

To learn more about these cardioglycoside drugs, the research team analyzed data from patients. "We discovered that it was thus possible that the more potent digitoxin or ouabain might provide even better clinical protection from COVID-19," said Pollard.

The grant also supports further tests of whether these drugs will protect hamsters (the best animal model for studying COVID-19 in humans) from either acute infection with SARS-CoV-2 virus or the lengthy post-infection disorder known as Post-Acute Sequelae of SARS-CoV-2 infection (PASC), which is also known as Long COVID.

### New Study on Wartime Medical Care in Ukraine

This year, HJF launched a new study that will assess the civilian care provided through the Ukraine Ministry of Health to evaluate wartime medical care delivery. The goal is to inform ongoing medical operations for the U.S. military, NATO, and Ukraine.

"This study will provide important military medical instruction and lessons to civilians on the frontlines in Ukraine," said Dr. Joseph Caravalho, Jr., HJF President and CEO. "As part of HJF's mission to support military medical research and education,

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we know these lessons will improve care delivery, informing future wartime medical operations, and helping those who need it most."

Conducted on behalf of the Department of Defense, the study will be done with Aspen Medical USA, a D.C.-based subsidiary of Aspen Medical, located in Australia. "We are excited to be partnering with HJF on behalf of the Department of Defense on this vital study in Ukraine," said Ethan Bond, Vice President, Aspen Medical USA. "This is the first research program of its kind that is providing frontline medical reporting from Ukraine to provide data that will guide the development and delivery of combat casualty care in Ukraine for the remainder of the war and beyond."

## The Healing Power of Creative Arts Therapies

Established in 2012, in partnership with the Departments of Defense (DoD) and Veterans Affairs (VA), The National Endowment for the Arts' Creative Forces<sup>®</sup>: NEA Military Healing Arts Network seeks to improve the health, well-being, and quality of life for military and veteran populations exposed to trauma and their families and caregivers.

HJF helps manage Creative Forces by providing scientific, technical, and programmatic support services. This support includes employing creative arts therapists in 12 DoD and VA sites across the U.S. and research, program evaluation, and performance measurement efforts.

Music therapy is among the creative arts therapies offered at Creative Forces sites and has been studied through the initiative's research efforts. Evidence supports that music therapy decreases post-traumatic stress disorder (PTSD) symptoms after traumatic brain injury (TBI).

"I have a new baseline, and that is a smile every day," said Michael Schneider, a former Creative Forces music therapy patient. "When I feel the seizure coming, I grab my ukulele and play to keep away the old same and maintain my new same, which is being alive. Now, I hear music everywhere, in the dark, in the light, and with each individual note on each string I play, I feel my body healing."

To learn more about the benefits of creative arts therapies, visit the Creative Forces <u>National Resource Center</u> to view publications and research.



# Researching Women's Healthcare in the U.S. Military Health System

Approximately 369,000 women currently serve as active-duty service members in the U.S. military. Despite this significant number (17 percent), their specific health needs—especially reproductive care—have often been neglected.

Treatment options for reproductive health (including infertility, pregnancy loss, and contraceptive use) are limited by location, accessibility, cost, and even rank. This is especially true for women deployed to remote areas or aboard ships for whom access to reproductive care is highly limited.

Knowledge translation is the process by which complex research findings are made more accessible to decision makers for use in policy making. Research has shown that on average a 17-year gap exists between the generation of new knowledge and the practical implementation of that knowledge, which can be highly detrimental for patients. The Center for Health Services Research (CHSR) at the Uniformed Services University (USU) has a vision to produce actionable, outcomes-based policy recommendations. With this vision in mind, CHSR researchers designed a research brief that aimed to facilitate the knowledge translation of Military Health System focused women's health research findings. Once the research brief was created, it needed to be evaluated to assess its utility.

The researchers interviewed 17 participants between July and August 2022 from a diverse range of healthcare occupations working within the Department of Defense. Participant occupations included department chiefs, directors, deputy department chiefs or directors, nurses, nurse consultants, physicians, program directors and managers, and researchers.

Based on their findings, the researchers obtained new insights for helping to rapidly disseminate information for improving the healthcare of active-duty service women. Their research paper titled "Designing a knowledge translation tool for women's health research in the U.S. Military Health System," which included HJF co-authors Miranda (Janvrin) Le and Jessica Korona-Bailey, was published in *Health Research Policy and Systems*.





## HJF Launches Innovation Initiative

More than 200 people attended the "TEDCO Pop-Up with HJF" in February to formally kick off a new collaboration between HJF and TEDCO (Maryland Technology Development Corporation). TEDCO serves as Maryland's leading source of funding for early-stage, technology-based businesses. It also fosters technology transfer and commercialization from the state's universities and federal labs.

"HJF is pleased to partner with TEDCO to expand access to innovations and discoveries made across a broad spectrum of research areas that are pertinent to service members. This partnership framework will allow faster development of important medical innovations for the military medical community," said Dr. Joseph Caravalho, Jr., HJF President and CEO.

The event, which featured various speakers involved in the commercialization of research, entrepreneurship, and venture creation, was part of an ongoing and expanding innovation ecosystem initiative led by HJF to facilitate a pathway to commercialize more products and services with the goal of improving the health of both our military and civilian populations.

"We're working together to leverage our strengths—HJF's 40 years of experience in research management and acceleration and, for instance, TEDCO's expertise as a leader in pushing innovation to market—to ultimately get products that help service members into their hands," said Dr. La Shaun Berrien, HJF's Senior Vice President of Research Administration and Innovation Management.



## Leadership

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## Financials

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BENCH TO BATTLEFIELD TO BEDSIDE

The financial information expressed here represents preliminary unaudited statements for fiscal year 2023.

For a complete copy of the latest financial statement, contact:

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Chief Financial Officer Henry M. Jackson Foundation for the Advancement of Military Medicine 6720A Rockledge Drive, Suite 100 Bethesda, Maryland, 20817 To view our digital report, including videos, please scan this code.





FY2023 Impact Report

## Additional Funding Sources (Over \$50,000)

#### ABSS SOLUTIONS

AMERICAN ASSOCIATION OF COLLEGES OF OSTEOPATHIC MEDICINE

ANALYTICAL DIAGNOSTICS SOLUTIONS INC

CAMRIS INTERNATIONAL

CHILDRENS HOSPITAL MEDICAL CENTER

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US AIR FORCE RESEARCH LABORATORY

US ARMY MED RES ACQUISITION ACTIVITY

USU SURGICAL ASSOCIATES

YALE UNIVERSITY

## Consolidated Statement of Activities

### Preliminary, Unaudited | Year ended Sept. 30, 2023

REVENUES	
Contributions	\$ 1,623,607
Grants and contracts	560,524,802
Investment income	6,720,374
Licensing fees and other	3,358,390
Net assets released from restrictions and transfers	-
Total revenues	572,227,173
EXPENSES	
Program services	
Research grants and contracts	509,726,928
Other program activities	40,925,673
Endowment and similar programs	1,327,189
Education projects	1,221,112
Total program services	553,200,902
Total support services	7,054,949
Total expenses	560,255,851
Change in Net Assets	11,971,322
Net assets, beginning of year	149,840,678
Net assets, end of year	\$ 161,812,000

## Consolidated Statement of Financial Position

#### Preliminary, Unaudited | As of Sept. 30, 2023

#### **ASSETS**

Cash and cash equivalents	\$ 61,201,897
Grants and contracts receivable, net	108,432,907
Prepaid expenses and other current assets	8,584,134
Investments	75,094,795
Right of use assets, operating	50,347,972
Property and equipment, net	2,400,320
Goodwill & intangible assets	3,904,090
Other assets	7,251,754
Total Assets	\$ 317,217,869
LIABILITIES	
Accounts payable and accrued expenses	57,345,560
Accrued leave and benefits	18,888,783
Deferred revenue	15,144,887
Lease liability	56,794,046
Deferred rent	0
Other payables	7,232,593
Total Liabilities	155,405,869
NET ASSETS	
Without donor restriction	110,275,654
With donor restriction	51,536,346

Total liabilities & net assets	\$ 317,217,869

**Total net assets** 

161,812,000

