# FY2021
# Annual Report

## A Year of Impact and Targeted Growth

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## AN OVERVIEW OF THE FY21 ANNUAL REPORT

# Welcome to the HJF FY2021 Annual Report:

## A Year of Impact and Targeted Growth

Simply put, HJF advances military medicine. As a nonprofit organization authorized by Congress to support research and education at the Uniformed Services University of the Health Sciences and throughout the military, our work improves the health and wellness of our armed forces and civilians alike, around the globe.

HJF has been a vital link between the military medical community and our federal and private partners since 1983. Each year, our research in laboratories and facilities around the world makes an impact on those we serve. Like connective tissue, HJF brings essential teams together to improve medicine and health for all.

HJF made a big move this year to further military medicine: We acquired CAMRIS International as a wholly owned subsidiary of HJF. Like HJF, CAMRIS has a strong portfolio in military medicine and global health with more than 60 years of experience in research solutions around the world.

Now with 3,000 staff worldwide, HJF and all its wholly owned subsidiaries provide military health and research, international development, global health, and clinical and life sciences services to our customers. HJF serves military, medical, academic, and government clients in many ways. We administer, manage, and support preeminent scientific programs.

Our research aims to fight illness, prevent disease, heal the wounded, and so much more. From A (AIDS) to Z (Zika), HJF applies its expertise and capacity to solve global health concerns.

Of course, the year brought immense challenges, including the continuing COVID-19 pandemic. We faced the changing work environment head on and worked in a hybrid model, with many of our employees teleworking and following guidelines at military bases. HJF approached the pandemic as we do all of our work: as an opportunity to do better for those in harm's way.

HJF is committed to equality. We understand the importance of community and rely on respectful collaboration across our teams. In FY21, we brought more focus to Diversity & Inclusion. Several initiatives, such as new Employee Resource Groups and an Ombuds program, help to drive home our commitment to these values.

As a member of the global community, HJF also aims to protect people. We were incredibly proud to vouch for many who worked on HJF-administered programs in Afghanistan many years ago. We can only hope this support may prove beneficial to these individuals.

Whether it is a warfighter wounded on the battlefield or a sick child suffering in a small village, our mission remains steadfast as we continue to provide scientific research for vaccines, treatments, and cures so that medicine and outcomes are improved for all.

I hope you enjoy the stories in HJF's FY21 Annual Report, and that they inspire you to consider how you can become involved, whether as a donor, sponsor, partner, or teammate. Thank you for your interest in HJF and in advancing military medicine.

Sincerely,

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


hjf

SECTION 2

# Leadership

# Leadership

**PRESIDENT AND CHIEF EXECUTIVE OFFICER**

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

**EXECUTIVE VICE PRESIDENT, CHIEF OPERATING OFFICER**

Elizabeth "Betsy" Folk
MBA

**SENIOR VICE PRESIDENT, GENERAL COUNSEL**

Catherine M. Clark
J.D.

**VICE PRESIDENT, STRATEGIC INITIATIVES**

Cynthia L. Gilman
J.D.

**VICE PRESIDENT, INTERIM CHIEF HUMAN RESOURCES OFFICER**

Nadine Malloy

**SENIOR VICE PRESIDENT, CHIEF FINANCIAL OFFICER AND TREASURER**

Corey Hastings
MBA, CPA

**VICE PRESIDENT, CHIEF MEDICAL OFFICER**

Merlin Robb
M.D.

**VICE PRESIDENT, RESEARCH ADMINISTRATION & INNOVATION MANAGEMENT**

La Shaun J. Berrien
Ph.D.

**VICE PRESIDENT, CHIEF ETHICS AND COMPLIANCE OFFICER**

Jessica A. Bejarano
J.D.

**VICE PRESIDENT, CHIEF INFORMATION OFFICER**

Rizwan A. Jan
CISSP, PCIP, CTPRP

**VICE PRESIDENT, CHIEF COMMUNICATIONS OFFICER**

Hilary Longo
M.S.

**PORTFOLIO LEAD AND DIRECTOR**

Andrea M. Stahl
Ph.D., COL, U.S. Army, (Ret.)

**PORTFOLIO LEAD AND DIRECTOR OF HJF COMPONENT OF MILITARY HIV RESEARCH PROGRAM (MHRP) & EMERGING INFECTIOUS DISEASE BRANCH**

Sandhya Vasan
M.D.

**PORTFOLIO LEAD AND SENIOR DIRECTOR**

Tiffany Hamm
Ph.D.

## HJF Quick Facts

### What do employees enjoy most about working for HJF?

**TOP 3 ANSWERS:**

THE MISSION

THEIR TEAM AND COWORKERS

FLEXIBILITY

**3,000+**

NUMBER OF EMPLOYEES

# Council of Directors

### CHAIRMAN OF THE COUNCIL OF DIRECTORS

## The Honorable John H. Dressendorfer

The Honorable John H. Dressendorfer retired as Vice President of Government Affairs at L-3 Communications Corp. Previously, he was Vice President of Government Relations for Titan Corp., which L-3 acquired in 2005.

Prior to working with Titan Corp., he was Vice President of Government and External Affairs for the American Forest & Paper Association. He was President and Founder of the lobbying firm Dressendorfer Laird.

He also served as a Special Assistant to the President for Legislative Affairs under President Reagan and was an Assistant to Secretary of Defense Melvin Laird during the Nixon administration. He is Chair of HJF's Council of Directors Executive Committee and a member of the Compensation & Governance Committee.

## Sid Ashworth

Ms. Sid Ashworth recently retired from Northrop Grumman Corporation where she was the Vice President of Government Relations. She brings more than 25 years of experience in legislative and executive branch relations to HJF's Council of Directors. Additionally, she is a Senior Adviser for the Center for Strategic and International Studies; has been a guest lecturer at Indiana University, The Brookings Institute, Georgetown University; and was a Senior Executive Fellow at Harvard University's JKF School of Government. Ms. Ashworth is Chair of HJF's Council of Directors Compensation & Governance Committee and a member of the Executive Committee.

## Elder Granger, M.D., MG, U.S. Army (Ret.)

Dr. Granger is a retired Major General in the United States Army and a board-certified physician. He is currently the President and CEO of THE 5Ps, LLC, a healthcare, education, and leadership consulting organization. Previously, Granger served as the Deputy Director and Program Executive Officer of the TRICARE Management Activity. He was the principal advisor to the Assistant Secretary of Defense (Health Affairs) on DoD health plan policy. Granger has received numerous awards, decorations, and honors, including the Defense Superior Service Medal, the Legion of Merit with three oak leaf clusters, the Bronze Star Medal, and the Meritorious Service Medal with four oak leaf clusters. Dr. Granger is a member of HJF's Council of Directors Executive Committee, Audit Committee and Compensation & Governance Committee.

## John ("Jay") Paxton, Jr., Gen., USMC (Ret.)

Marine Corps General John ("Jay") Paxton, Jr., Ret., joined the Council of Directors in 2017. He served as the 33rd Assistant Commandant of the Marine Corps before retiring in 2016. As the second-highest ranking officer in the Marine Corps, he played a critical role in ensuring the health and wellbeing of Marines. With deployments to locations worldwide, he emphasized, advocated and recommended priorities for the Marine Corps. He is a member of HJF's Council of Directors Executive Committee and Audit Committee.

## Thomas W. Weston, Jr., CPA

Mr. Weston retired as the Senior Vice President and Chief Financial Officer of ECS Federal, LLC, which is based in Fairfax, Virginia. ECS is a leading provider of advanced technologies and solutions in the cloud, cybersecurity, artificial intelligence, machine learning, and IT modernization areas. Mr. Weston led all accounting and finance initiatives for the company and had a key role in driving the strategic direction of ECS through both organic growth and a focused mergers and acquisitions program. Mr. Weston also oversaw the contracts, procurement and corporate facility functions at ECS.

Prior to his work at ECS, Mr. Weston was Executive Vice President, CFO, Treasurer and Secretary of Acentia, LLC. In addition to his services with HJF, Mr. Weston is a member of the Board of Directors of both NeoSystems, LLC and MAG Aerospace, where he also serves as the chairman of the audit committee. Mr. Weston is Chair of HJF's Council of Directors Audit Committee and a member of the Executive Committee.

## Gail R. Wilensky, Ph.D.

Dr. Wilensky is an economist and senior fellow at Project Hope with more than 30 years of experience in health sciences. She directed the Medicare and Medicaid programs and served in the White House as a senior advisor on health and welfare issues to President GHW Bush. Wilensky was on the Board of Regents of the Uniformed Services University of the Health Sciences (USU). She also co-chaired the Department of Defense Task Force on the Future of Military Health Care.

Wilensky received a bachelor's degree in psychology and a Ph.D. in economics at the University of Michigan and has received several honorary degrees. She is a member of HJF's Council of Directors Executive Committee and Audit Committee.

### EX-OFFICIO DIRECTOR

## U.S. Representative Salud Carbajal (D-California)

Representative Salud Carbajal, a Democrat who serves California's 24th congressional district, is a member of the House Committee on Armed Services.

He attended the University of California, Santa Barbara and Fielding Graduate University, where he earned a master's in organizational management. Rep. Carbajal also served in the United States Marine Corps Reserve for eight years.

Before his election to the U.S. House of Representatives in 2016, he served on the Board of Supervisors for Santa Barbara County.

## EX-OFFICIO DIRECTOR
### U.S. Representative Scott DesJarlais (R-Tennessee)

Representative Scott DesJarlais is currently serving his fourth term in Congress representing Tennessee's fourth congressional district. He serves on several committees in the House, including Oversight and Government Reform, Armed Services, Agriculture, Subcommittee on Readiness, and Subcommittee on Seapower and Projection Forces.

He is also a member of the House Freedom Caucus as well as the GOP Doctors Caucus.

Rep. DesJarlais earned degrees in chemistry and psychology from the University of South Dakota and went on to receive his M.D. from the University of South Dakota School of Medicine.

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## EX-OFFICIO DIRECTOR
### U.S. Senator Jim Inhofe (R-Oklahoma)

U.S. Senator Jim Inhofe (R-Oklahoma) is the Ranking Member of the Senate Armed Services Committee. He has a long history of public service, beginning with his service in the U.S. Army to his current role in the United States Senate.

In addition to his role on the Armed Services Committee, Sen. Inhofe is also a member of the Environment & Public Works Committee, the Commerce Committee and the Small Business Committee. Prior to serving the people of Oklahoma in the U.S. Senate, Sen. Inhofe served in the U.S. House of Representatives, the Oklahoma House and Senate and as Mayor of Tulsa, Oklahoma.

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## EX-OFFICIO DIRECTOR
### U.S. Senator Jack Reed (D-Rhode Island)

U.S. Senator Jack Reed (D-Rhode Island) is the Chairman of the Senate Armed Services Committee. After graduating from the United States Military Academy in 1971, he received an active-duty commission in the Army.

Over the course of his military career, he earned the Army Commendation Medal with Oak Leaf Cluster, Ranger Tab, Senior Parachutist Badge, and Expert Infantry Badge. He later earned a master's in public policy from Harvard's John F. Kennedy School of Government and a law degree from Harvard Law School in 1982.

He served three terms in the Rhode Island State Senate and three terms in the U.S. House of Representatives. Sen. Reed was elected to the U.S. Senate in 1996.

## EX-OFFICIO DIRECTOR

### William Roberts, M.D., RADM, USN (Ret.)

Dr. William Roberts, an emergency physician and retired Navy Flag Officer, is acting President at the Uniformed Services University of the Health Sciences (USU) in Bethesda, Maryland. He is responsible for the academic, research and service mission of the university.

A native of Washington DC, Rear Adm. (Ret) Roberts was raised in Europe while his father served as a diplomat in the U. S. Foreign Service. He graduated cum laude with a bachelor's degree from Princeton University in New Jersey. He earned a Doctor of Medicine degree from George Washington University and was subsequently commissioned as a lieutenant in the Navy's Medical Corps in May 1979. Dr. Roberts is a member of HJF's Executive Committee and Compensation & Governance Committee.

## DIRECTOR EMERITUS

### The Honorable Beverly Byron

The Honorable Beverly Byron served seven successive terms in Congress as a Democratic representative from Maryland.

She was the first woman to head a subcommittee of the House Armed Services Committee, chairing the Military Personnel and Compensation Subcommittee, where she oversaw more than 40 percent of the Department of Defense's budget. She also chaired the House Special Panel on Arms Control and Disarmament. She was named to the Defense Base Closure and Realignment Commission in 1993.

## CHAIRMAN EMERITUS

### Philip A. Odeen

Chairman Philip A. Odeen retired in 2002 as Chairman and CEO of TRW Inc., an aerospace, defense and automotive company that merged with defense contractor Northrop Grumman. Previously, he was President and Chief Executive Officer of BDM International Inc., an IT firm acquired by TRW. Before joining BDM, Odeen was Vice Chairman of Management Consulting Services at accounting firm Coopers & Lybrand. He has served on several Department of Defense advisory boards.

Earlier in this career he served in senior positions in the Office of the Secretary of Defense and the National Security Council. Since retiring, he has served on and chaired a number of public company boards.

SECTION 3

# A Year of Impact

# Texas Police Departments Receive Rapid Response Trauma Kits

In September, HJF donated rapid response trauma kits to the San Antonio and Austin Police Departments. The kits, which were sourced from South Carolina-based North American Rescue, include life-saving technologies derived from military medicine, such as tourniquets and hemostatic bandages.

These devices are examples of technology designed to help the warfighter, which can also be transferred for use in the civilian world. While tourniquets and bandages have been used to treat trauma for hundreds of years, military medical research has led to meaningful upgrades to these devices. Tourniquets are now smaller, more effective, and easier to use. Bandages stop bleeding faster through the addition of coagulating products.

**"HJF is driven to serve our nation's heroes, both those deployed and those who keep our communities safe," said Dr. Joseph Caravalho, HJF President and CEO. "It's gratifying for HJF to donate kits deploying HJF-supported technologies to the San Antonio and Austin Police Departments."**

With more than a dozen Military Health System units and hundreds of research programs in the area, San Antonio is a nexus of military medicine. HJF has supported local military medicine in the region for more than 20 years.

**"We are dedicated to advancing technologies that protect and help our men and women in uniform," said Caravalho. "These inventions also have applications in civilian life. A tourniquet can save a life in a car accident. A hemostatic bandage can prevent severe blood loss when a victim is on an oil rig, a farm, or anywhere else far from a hospital."**

# HJF Hosts Heroes of Military Medicine Awards


HJF hosted its 10th annual Heroes of Military Medicine Awards on May 6, 2021, at the Andrew Mellon Auditorium in Washington, D.C. Due to the pandemic, honorees and program participants attended in person while others viewed the event virtually.

Not a surprise, this year's awards focused on COVID-19. Four individuals—General Gustave Perna (Chief Operating Officer for Operation Warp Speed, now known as the Countermeasures Acceleration Group), Lieutenant Colonel Michelle Colacicco-Mayhugh (Army), Lieutenant Commander (Doctor) Matthew Hall, MC (Navy), and Lieutenant Colonel Patrick W. Kennedy (Air Force)—were honored for their significant contribution to advancing military medicine and the fight against the coronavirus and the disease it causes.

In addition to these four individuals, the Hero of Military Medicine Ambassador Award was presented to the multiple companies that accomplished the herculean feat of creating, manufacturing, and distributing a COVID-19 vaccine in less than a year.

General Mark A. Milley, Chairman of the Joint Chiefs of Staff gave the keynote address. HJF President and CEO, Dr. Joseph Caravalho, Jr., provided welcoming remarks and thanked the event's many generous sponsor partners, especially Health Net Federal Services, the Chairman Sponsor, and Kathy Redd, its President and CEO.

**READ MORE:** https://www.hjf.org/hmm

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# HJF Acquires CAMRIS International, LLC.

HJF acquired CAMRIS International, LLC, an international development and health research firm that combines research and technical assistance expertise with modern, evidence-based practices to develop innovative solutions to complex problems.

The acquisition expands HJF's international portfolio. CAMRIS's mission aligns closely with that of HJF, as its primary focus is military medical research and global health. With more than 250 employees, CAMRIS is now a wholly-owned subsidiary of HJF.

**"As a trusted partner in military medicine, HJF continuously looks to improve our ability to deliver the best service possible to those conducting medical research benefitting our nation's warfighters and civilians alike," said HJF President and CEO, Dr. Joseph Caravalho, HJF President and CEO.**

**"This acquisition bolsters HJF's broader capabilities due to the CAMRIS team's success in delivering requirements-driven results on contracts worldwide."**

CAMRIS made significant contributions to HJF's mission and revenue in 2021 with expanded work for USAID, NIH, and the DoD, including advancing the Defense Department's SARS-CoV-2 vaccine manufacturing initiatives through the Walter Reed Army Institute of Research Pilot Bioproduction Facility. Additionally, the Board of Directors appointed a new President of CAMRIS, Rodney R. Sweetland, III, J.D. Before assuming the responsibilities of President, Mr. Sweetland had a 17-year history with CAMRIS and its predecessors. Starting as outside counsel, he then became General Counsel and then Chief Operating Officer. He has published in the fields of Government Contracts and Intellectual Property.

# HJFMRI Launches New Website

The new HJF Medical Research International (HJFMRI) website offers a wealth of information, including a brief history of the organization and its mission, vision, and values. Additionally, the site features numerous case studies with a description of the work and results from the HJFMRI team. The website also highlights important partners, including CDC, WRAIR, the Bill & Melinda Gates Foundation, NIH, and GlaxoSmithKline.

HJFMRI, HJF's wholly-owned subsidiary, was established in 2001 to support employees and projects in foreign jurisdictions, providing research and clinical underpinnings to vital projects worldwide. Its FY21 work involves nearly 500 employees working on 170 programs across 13 countries.

**VISIT THE HJFMRI WEBSITE:**
https://www.hjf.org

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# Employee Diversity and Equality Programs Grow

HJF advances military medicine to make the world a healthier place for people of all races and backgrounds. This year HJF welcomed a Diversity & Inclusion (D&I) Manager to take further action to reflect our core values of Diversity & Community as well as Dignity & Respect.

## HJF'S D&I FOCUS CENTERS AROUND THE FOLLOWING ACTIONS:

- We commit to listen and learn from those whose voices have too often been silenced.
- We recognize bias exists, conscious and unconscious, and work to raise our own awareness and combat that bias.
- We strive to hire and promote based on performance while celebrating diversity throughout our workforce worldwide.

Additionally, HJF implemented an Ombuds Program to offer an independent, impartial, informal, and confidential resource to assist employees in addressing issues they face.

Another resource introduced this year is the Employee Resource Group model. These employee-led groups include members who are drawn together by a common interest and work toward advancing diversity and inclusion to meet the HJF mission. Our employees have a drive to collaborate, support one another, and pursue excellence, and the new ERGs provide a formal structure to help them do so.

# HJF Recognized as Second Largest Biosciences Employer in Greater Washington, D.C. Area

HJF's regional importance in employing top scientists and research teams is reflected in its being ranked second by the Washington Business Journal on its annual list of top bioscience employers in the Washington, D.C., metro area. Note that government entities are not included in the list, and federal research teams in the area would easily top the list if they were. The list was compiled using feedback from the organizations Form 990s, SEC filings, and regional economic development agencies.

## HJF Quick Facts

**1,150**

**ACTIVE RESEARCH PROTOCOLS IN FY21**

### TO VIEW THE ENTIRE LIST:

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Hold your device over this QR Code so that it's clearly visible within your smartphone's camera screen. The phone will automatically scan the code and take you to the website.

# Technologies Going Beyond Military Medicine

HJF hosts its Technology Showcase online to highlight a selection of the more than 230 technologies HJF has available for license. These technologies range from therapeutics and treatments to vaccines and devices.

Since HJF's authorization by Congress in 1983, it has administered millions of dollars in medical research grants, awards, contracts, and cooperative agreements. These research projects have resulted in hundreds of patents, with licensed technologies generating over $1 billion in product sales. Examples include a Nipah virus vaccine, a preventive measure for respiratory syncytial virus called Respigam®, and a treatment for hemorrhaging called FASTCLOT®. HJF's Technology Transfer Office has more than two decades of experience with protecting and licensing technologies.

**"Our research partners trust us with their intellectual property, and, as stewards of these incredible innovations, it is our duty to partner with private industry to bring these technologies to market," said Dr. La Shaun Berrien, HJF Vice President of Research Administration and Innovation Management.**

# HJF Now Offers Services Through a GSA Multiple Award Schedule


To meet our customers and partners where they are, HJF received approval to offer its services through a General Services Administration's (GSA) Multiple Award Schedule. Businesses, nonprofit organizations (like HJF) and educational institutions use this government-wide contract vehicle to sell services and products to the federal government.

**"Essentially, this contract offers partners a new way to engage with HJF," said Cynthia Gilman, HJF Senior Vice President of Strategic Initiatives. "We are the trusted partner-of-choice in technology transfer for innovations generated through our multiple research partnerships throughout the DoD and federal government."**

Also known as a Multiple Award Schedule, a GSA Schedule is a long-term government-wide contract with commercial firms providing federal, state and local government buyers access to more than 11 million commercial supplies and services at volume discount pricing.

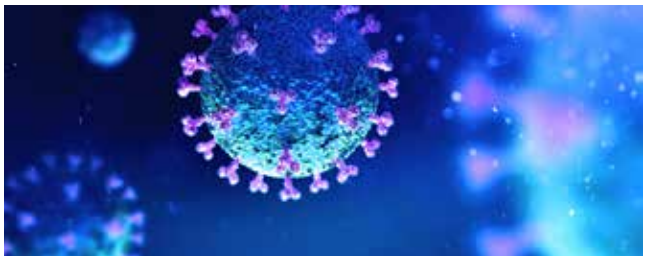
Contractor information about HJF can be seen on the GSA eLibrary. HJF is approved to participate as a prime contractor for GSA awards in the following Special Item Numbers (SIN):

SIN: 541690 Category, which includes providing advice and assistance on technical domains and issues (except those covered by the environmental, energy, and IT consulting). Typical associated tasks include, but are not limited to, strategic planning, feasibility analysis, requirements determination, policy interpretation and support, process analysis and/or development, research studies, testing (other than laboratory testing), program analysis, and associated support tasks.

SIN: 541715 Category, which includes conducting research and experimental development (except nanotechnology and biotechnology research and experimental development) in the physical, engineering and life sciences such as agriculture, electronics, environmental, biology, botany, computers, chemistry, food, fisheries, forests, geology, health, mathematics, medicine, oceanography, pharmacy, physics, veterinary and other allied subjects.

More information about HJF and the GSA Schedule can be obtained from the HJF Business Development Office at businessdevelopment@hjf.org.

# HJF Co-Hosts COVID-19 Research Day for DoD Partners



On June 11, 2021, HJF co-hosted a full day of virtual COVID-19 research presentations in collaboration with the Uniformed Services University of the Health Sciences (USU) and the Walter Reed Army Institute of Research (WRAIR). The presenters were a combination of HJF, USU, WRAIR, and other Military Health System scientists who have been combatting the COVID-19 pandemic.

**"For more than 35 years, HJF has supported the critical work being done by our DoD partners to make our Nation's warfighters more agile, resilient, and survivable," Dr. Caravalho said in his introduction.**

**"Faced with the magnitude of challenges of this global pandemic, the talented men and women of the military medical departments poured their energy and collective intellectual horsepower into studying SARS-CoV-2 as part of the Whole of the Nation approach to combatting COVID-19."**

COVID-19 Research Day included more than 30 presentations on topics including machine learning to predict severe COVID-19 infection, vaccine development and testing, therapeutics research, impact on pediatric patients and future pandemic response considerations. Additionally, panel discussions provided multiple perspectives on specific topics from research experts.

HJF presenters included:

- Dr. Sandhya Vasan, Director of the HJF Component of the U.S. Military HIV Research Program (MHRP) & Emerging Infectious Disease Branch (EIDB) at WRAIR, moderated the presentations.
- Dr. Brian Agan, Deputy Science Director of the USU Infectious Disease Clinical Research Program, presented on the Epidemiology, Immunology, and Clinical Characteristics of Emerging Infectious Diseases with Pandemic Potential (EPICC) study, whose research aims to identify risk factors for COVID-19 in the military population, understand the symptoms and disease course, and investigate clinical outcomes.
- HJF's Chief Medical Officer, Dr. Merlin Robb, presented on infection rates among pediatric patients in the United States. Dr. Robb is co-chair of the clinical trial work group for vaccine development on the Countermeasures Acceleration Group (formerly called Operation Warp Speed).
- Dr. Shelly Krebs, Chief of the B Cell Biology Core at MHRP, presented research on novel monoclonal antibodies (mAB). Her group is working with EIDB to identify and characterize promising mAbs, a type of immunotherapy that may have applications for prevention and treatment of COVID-19.
- Dr. Bethany Dearlove, an evolutionary biologist with the Viral Genetics Section at MHRP, presented on the evolution of SARS-CoV-2 and the variants of concern emerging as the virus continues to spread across the globe.

**"The breadth of research presented at the COVID-19 Research Day was astounding, and we are gratified to have convened this event with co-hosts USU and WRAIR," said Dr. Caravalho. "HJF is proud to stand alongside all our DoD partners, encouraging collaboration and supporting the ongoing fight against COVID-19."**

# Veterans Metrics Initiative Concludes Five-Year Study

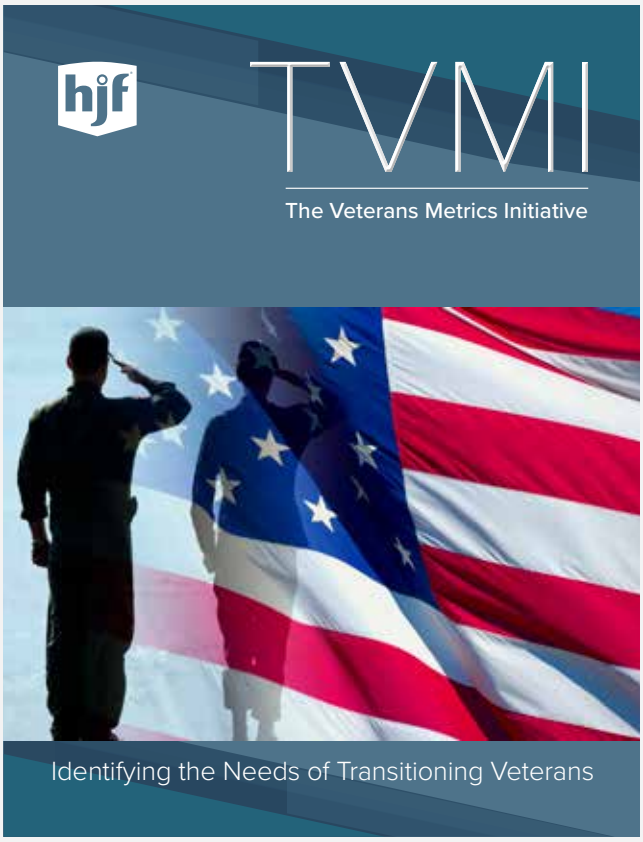
HJF administratively led a five-year study that recently marked its completion by making its data available through the Inter-university Consortium for Political and Social Research (ICPSR). The first known research effort to longitudinally examine post-9/11 veterans' transition and reintegration experiences, The Veterans Metrics Initiative: Linking Program Components to Post-Military Well-Being (TVMI) was designed to improve the well-being of veterans and their families by conducting collaborative, translational metrics-related research.

As a collaborative public-private research initiative, TVMI followed a cohort of 9,566 veterans in their transition from military to civilian life from the fall of 2016 through the fall of 2019. The study aims were to:

1. Document veteran well-being in four key domains—vocation, finances, mental and physical health, and social relationships—over the first three years of the transition from military to civilian life.
2. Describe programs that are used by veterans as they reintegrate into civilian life, distill them into their components, and identify common components across programs.
3. Examine the link between common program components and veteran well-being, and between program components and veteran characteristics or subgroups.

Data from The Veterans Metrics Initiative (TVMI) Transitioning Veterans Survey (TVS) are available through ICPSR at no cost to any researcher affiliated with an ICPSR member institution. Researchers at non-member institutions can pay to access the data and should contact ICPSR at ICPSR-help@umich.edu.

The data are restricted-use, meaning researchers must apply for the data through the ICPSR site. As part of the application process, researchers must provide their IRB approval, agree to a data security plan, and enter into a Restricted Data Use Agreement. For more information about accessing the data or to begin the application process, visit and click on the Access Restricted Data button.




## HJF Quick Facts

**33%**

**PERCENTAGE OF EXECUTIVES WHO ARE VETERANS**

# HJF Presents Emeritus Status to Two Retiring Members of its Council of Directors

Two long-time members of HJF's Council of Directors stepped down in late 2020. Mr. Philip A. Odeen, who served as Chairman of HJF's Council of Directors since 1998, and the Honorable Mrs. Beverly Byron, who served since 1996, were honored for their dedication.

Upon retiring, Odeen was appointed Chairman Emeritus of HJF's Council of Directors, while Byron was appointed an Emeritus Director.

**"Chairman Odeen and Director Byron have been invaluable leaders on our Council of Directors. For more than two decades they demonstrated unwavering commitment, dedication, and support to HJF," said HJF President and CEO Dr. Joseph Caravalho.**

"When I joined HJF in 2017, Mr. Odeen and Mrs. Byron provided superb mentorship and guidance to help me hit the ground running. Their combined leadership and experience have been vitally important in HJF's history, appropriately pivoting when needed to meet the new challenges facing military medicine today.

I can say without hesitation, HJF's success rests on the shoulders of these individuals, and we are deeply indebted to them both. I thank them wholeheartedly for their enormous commitment of time and energy over their decades of service from which tens of thousands of warfighters have benefitted."

**"With sincere appreciation and honor, I welcome them as emeritus Council Directors" said Dr. Caravalho.**

Odeen also served on the Executive and Compensation committees. His experience in aerospace and defense contracting provided valuable knowledge and expertise for HJF's mission to advance military medicine. His strategic leadership facilitated HJF's growth from managing a few dozen research projects to managing hundreds of projects with an annual value exceeding $500 million. He and his wife also personally supported multiple public-private partnerships, including the annual Heroes of Military Medicine dinner for successive years.

Byron also served on the Council's Executive and Audit Committees. During her tenure, HJF conducted two dozen audits as well as an executive search for a new president and CEO. As a former U.S. Representative from Frederick, Maryland, Byron provided impactful and timely guidance relevant to HJF's unique status as a Congressionally chartered organization.

The new Chairman of the Council of Directors is the Honorable Mr. John Dressendorfer, who has been a member of the Council of Directors since 1992. He has held many roles in the public and private sectors, including serving as Special Assistant to the President for Legislative Affairs under President Reagan and Assistant to Secretary of Defense Melvin Laird under President Nixon.

# HJF Welcomes New Members to its Council of Directors

Ms. Sid Ashworth and Dr. Elder Granger joined the HJF Council of Directors in January 2021.

**"We look forward to the contributions of Ms. Ashworth and Major General Granger," said HJF President and CEO Dr. Joseph Caravalho. "Both new Council members bring a wealth of experience in medicine and the DoD to our Council."**

Ashworth retired from Northrop Grumman Corporation where she was Vice President of Government Relations. She brings more than 25 years of experience in legislative and executive branch relations. Additionally, she is a Senior Adviser for the Center for Strategic and International Studies and has been a guest lecturer at Indiana University, the Brookings Institution, and Georgetown University. She was also a Senior Executive Fellow at Harvard's JKF School of Government.

Granger is a retired Major General in the U.S. Army and a board-certified physician. He is currently President and CEO of The 5Ps, LLC, a healthcare, education, and leadership consulting organization. Previously, Granger served as Deputy Director and Program Executive Officer of the TRICARE Management Activity. He was the principal advisor to the Assistant Secretary of Defense on DoD health plan policy. Granger has received numerous awards, decorations, and honors, including the Defense Superior Service Medal, the Legion of Merit with three oak leaf clusters, the Bronze Star Medal, and the Meritorious Service Medal with four oak leaf clusters.

## Melissa Bradshaw

Thanks to efforts from HJF employees like Melissa Bradshaw, HJF is making an impact. She supports the USU Operations portfolio as a Program Manager.


hjf

SECTION 4

# Growth in Programs

# A Patent for Nerve Agent Exposure

In 2018, a former Russian spy and his daughter were found unconscious next to a park bench in Salisbury, England, after being poisoned by a nerve agent. After spending several weeks in the hospital in critical condition, they both eventually recovered. However, the incident was a dramatic example of the threat nerve agents pose to the world.

The U.S. Patent Office in 2021 sent HJF a notice for a patent for a medical countermeasure against a similar chemical nerve agent named organophosphate (OP). Without pharmacological intervention, OP can cause seizures that result in brain damage, coma, and even death.

Maria F. Braga, DDS, Ph.D., in conjunction with the USU-HJF Joint Office of Technology Transfer, led a team of researchers that identified a neuroprotective combination therapy that is effective against OP exposure. The therapy was shown to be effective even with delayed use following nerve agent exposure, which is especially significant for treating a mass casualty event.

Dr. Braga's combination therapy of Tezampanel (a drug originally developed by Eli Lilly for migraines) in conjunction with Caramiphen (a drug used in Parkinson's disease) provides protection against the debilitating effects of OP exposure. The advantage of this therapy is that it reduces excessive glutamate released in the brain (which causes seizures) and protects the brain from any secondary damage caused by glutamate toxicity. In animal models, this therapy fully protected against neuronal damage and demonstrated protection superior to current treatments. Importantly, this new combination therapy also extends the therapeutic window, as it is effective even when administered hours after OP exposure.

**"Our current goal is to acquire the remaining pre-clinical data necessary to pursue the advanced development of this very promising therapy," said Dr. Braga, Professor of Anatomy, Physiology and Genetics, and Psychiatry in the in the School of Medicine at the Uniformed Services University of the Health Sciences.**

"Since our treatment relies upon drugs that have not been individually approved for this use, further development will be pursued in accordance with FDA guidelines. We intend to engage regulatory experts and to work with the FDA from an early stage."

Dr. Braga's research was supported by the Defense Threat Reduction Agency's Chemical and Biological Technologies Department and the National Institute of Health's CounterACT program.

# A Vaccine to Prevent Two Herpesviruses

HJF signed a licensing agreement with Citranvi Biosciences to develop vaccine technologies to prevent two herpesviruses: Epstein-Barr Virus and Cytomegalovirus. Epstein-Barr Virus is linked to an increased risk for autoimmunity and nearly 140,000 cancer deaths annually. Cytomegalovirus has a significant maternal-to-infant infection rate and is the most common infectious cause of brain damage and sensorineural hearing loss in infants.

In pursuing its mission to advance military medicine, HJF seeks to protect the health of our service members as well as to enhance force readiness. “The hope is that this partnership will lead to a new vaccine to benefit both our military and civilian populations alike,” said Dr. Linda Yaswen-Corkery, HJF Director of Technology Transfer.

Research for these vaccines was performed by Department of Defense (DoD) researchers at the Uniformed Services University of the Health Sciences (USU). The USU invention was patented by HJF under the USU-HJF Joint Office of Technology Transfer.

**“This is an outstanding example of technology transfer,” said Yaswen-Corkery. “The USU-HJF Joint Office of Technology Transfer has longstanding relationships with scientists, combined with our expertise in research and technology, which enables us to facilitate all aspects of technology transfer.”**

HJF’s Technology Showcase in 2021 highlighted a selection of more than 230 technologies available for license. These technologies range from therapeutics and treatments to vaccines and devices. HJF is the trusted partner of choice in technology transfer for innovations generated through HJF’s multiple research partnerships throughout the DoD and federal government.

In addition, HJF and USU, along with Biological Mimetics, Inc., received the prestigious 2021 Federal Laboratory Consortium’s (FLC) Award for Excellence in Technology Transfer for a new gamma radiation vaccine development platform created by Dr. Michael J. Daly, Professor of Pathology at USU. For six consecutive years (2013-2019) the work of the USU-HJF Joint Office of Technology Transfer (JOTT) has been chosen for the award.

Since its Congressional authorization in 1983, HJF has administered millions of dollars in medical research grants, awards, contracts, and cooperative agreements. These research projects have resulted in hundreds of patents, with licensed technologies generating over $1 billion in product sales. Examples include a Nipah virus vaccine, a preventive measure for respiratory syncytial virus called Respigam®, and a treatment for hemorrhaging called FASTCLOT ®. HJF’s Technology Transfer Office has more than two decades of experience with protecting and licensing technologies.

# Phase 1 Clinical Trial Will Evaluate Whether Army-Developed Adjuvant Boosts Immune Response to Experimental HIV Vaccines

In March of 2021, the Military HIV Research Program (MHRP) began a Phase 1 vaccine study to evaluate experimental HIV vaccine regimens formulated with combinations of different adjuvants, including one from the Army Liposome Formulation (ALF) family of adjuvants developed by scientists with MHRP at the Walter Reed Army Institute of Research.

An adjuvant is a component of a vaccine that can help make it more effective by improving the immune response or causing the immune response to last longer. The goal of the new trial, called RV460, is to evaluate whether an adjuvant can improve immune response to the antigens in the candidate vaccines. It will also help characterize the differences between the adjuvants and the role of adjuvants in priming versus boosting.

"By testing a DNA vaccine in combination with protein boosts and adjuvants, we hope to inform a more promising vaccine strategy that will elicit stronger, more durable immune responses," said MHRP Director Col. Julie Ake.

One of the adjuvants is ALFA, which was developed by U.S. Army scientists in MHRP's Laboratory of Adjuvant and Antigen Research. In a 2020 preclinical study conducted by MHRP, an HIV vaccine formulated with AFLA elicited stronger immune responses than a vaccine formulated with a more commonly used alum adjuvant.

**"Adjuvants work by recruiting immune cells into the site of immunization, which take up the HIV antigen and carry it to lymph nodes to make strong immune responses," explained Dr. Gary Matyas, chief of MHRP's Adjuvants and Formulations lab section. "We hope that the types of adjuvants used in RV460 will increase the immunity generated by DNA vaccines."**

The comparative study may have an impact beyond the HIV field. According to the study's principal investigator and HJFMRI researcher, Dr. Josphat Kosgei, "this adjuvant study should be generalizable, and might inform vaccines for other pathogens."

The study is led by MHRP scientists in partnership with the Kenya Medical Research Institute (KEMRI) and Walter Reed Project Clinical Research Center in Kericho, Kenya, where the study will take place. MHRP is HJF's largest supported program, and HJF Medical Research International is critical to carrying out MHRP's research in Kenya.

# Cormac the Llama's Antibodies May Detect and Prevent COVID-19

Researchers have isolated a set of promising, tiny antibodies ("nanobodies") from a llama named Cormac that could be useful in fighting SARS-CoV-2, which is the virus that causes COVID-19. Preliminary results published in the journal Scientific Reports suggest that at least one of these nanobodies, called NIH-CoVnb-112, could prevent infections and detect virus particles by grabbing hold of SARS-CoV-2 spike proteins. In addition, the nanobody appeared to work equally well in either liquid or aerosol form, suggesting it could remain effective after inhalation.

**"The SARS-CoV-2 spike protein acts like a key," said Thomas J. ("T.J.") Esparza, an HJF research scientist who is the lead author of the study. "It does this by opening the door to infections when it binds to a protein called the angiotensin converting enzyme 2 (ACE2) receptor, found on the surface of some cells. We developed a method that would isolate nanobodies that block infections by covering the teeth of the spike protein that bind to and unlock the ACE2 receptor."**

A nanobody is a special type of antibody naturally produced by the immune systems of camelids, a group of animals that includes camels, alpacas, and llamas (like Cormac). On average, these proteins are about a tenth the weight of most human antibodies. This is because nanobodies isolated in the lab are essentially free-floating versions of the tips of the arms of heavy chain proteins, which form the backbone of a typical Y-shaped human IgG antibody. These tips play a critical role in the immune system's defenses by recognizing proteins on viruses, bacteria, and other invaders, also known as antigens.

Because nanobodies are more stable, less expensive to produce, and easier to engineer than typical antibodies, a growing body of researchers, including Esparza and David L. Brody, M.D., Ph.D., who is the senior author of the study, have been using them for medical research. They performed their research in a brain imaging lab at the National Institute of Neurological Disorders and Stroke at the National Institutes of Health.

Since the pandemic began, several researchers have produced llama nanobodies against the SARS-CoV-2 spike protein that may be effective at preventing infections. In the current study, the researchers used a slightly different strategy than others to find nanobodies that may work especially well. For example, researchers immunized Cormac, who lives in Bellingham, Washington, five times over 28 days with a purified version of the SARS-CoV-2 spike protein. After testing hundreds of nanobodies they found that Cormac produced 13 nanobodies that might be strong candidates.

Initial experiments suggested that one candidate, called NIH-CoVnb-112, could work especially well. Test tube studies showed that this nanobody bound to the ACE2 receptor two-to-10 times stronger than nanobodies produced by other labs. Other experiments suggested that the NIH nanobody stuck directly to the spike protein's ACE2 receptor binding site.

Following these experiments, the team demonstrated the NIH-CoVnB-112 nanobody could be effective at preventing coronavirus infections. To mimic the SARS-CoV-2 virus, the researchers genetically mutated a harmless "pseudovirus" so that it could use the spike protein to infect cells that have human ACE2 receptors. The researchers saw that relatively low levels of the NIH-CoVnb-112 nanobodies prevented the pseudovirus from infecting these cells in petri dishes.

**"Although we have a lot more work ahead of us, these results represent a promising first step," said Esparza. "With support from NIH we are quickly moving forward to test whether these nanobodies could be safe and effective preventive treatments for COVID-19. Collaborators are also working to find out whether they could be used for inexpensive and accurate testing."**

The team has applied for a patent on the NIH-CoVnB-112 nanobody.

# Daniel Choi

Daniel Choi excels at HJF's U.S. Military HIV Research Program as a Senior Data Analyst.

## HJF Quick Facts

**38**
YEARS IN OPERATION

**13,500**
AWARDS MANAGED (LIFETIME TO DATE)

# Eliminating the Scourge of Gastrointestinal Diseases

According to the Centers for Disease Control and Prevention, diarrhea kills 2,195 children every day—more than AIDS, malaria, and measles combined. The occurrence of these diseases is most prevalent in areas with limited water treatment facilities. Although the military has developed extensive capabilities for the provision of clean food and water, diarrhea continues to be a problem around the world.

To develop a new immunotherapy to prevent gastrointestinal diseases, HJF and the Naval Medical Research Center (NMRC) established an agreement with Lumen Bioscience. Their research is focused on two pathogens—Campylobacter jejuni and enterotoxigenic E. coli (ETEC)—that can cause diarrhea and dysentery.

The ultimate goal of this project is to develop an ultra-low cost, orally delivered biologic to prevent infection. The biologic would be composed of a blue-green algae spirulina product that incorporates Campylobacter- and ETEC-specific tiny variable domains derived from a special type of antibody naturally produced by camelids, a group of animals that includes alpacas, camels, and llamas. Their small size allows engineering of spirulina to develop a product that provides pathogen-specific protection.

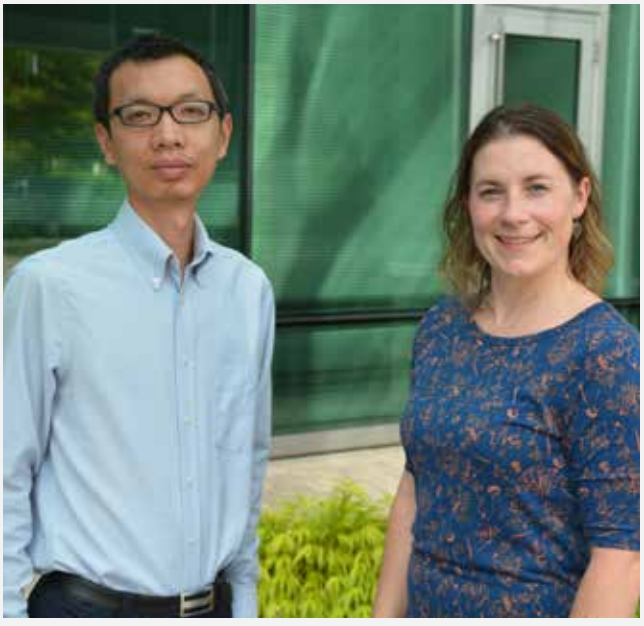
**"This initiative is a truly important collaborative effort to develop an anti-diarrheal product for the warfighter and children in countries where these diarrheal diseases are endemic," said Renee Laird, Ph.D., an HJF research scientist working in support of NMRC.**

"It is a very exciting and fast-paced endeavor. We have worked with our collaborators to identify important targets on the bacterial pathogens and are currently developing the antibody products. Simultaneously, we are developing critical animal models which will be used to evaluate the efficacy of the products we develop."

The development and testing of this new Lumen product is being funded by Combating Antibiotic Resistant Bacteria Biopharmaceutical Accelerator (CARB-X). CARB-X is a global nonprofit partnership led by Boston University and dedicated to funding the development of new products to address antibiotic-resistant bacteria.

Lumen, which is located in Seattle, has received an initial funding commitment of $5.2 million, with the project eligible for an additional $8.3 million if project milestones are met, subject to availability of funds from CARB-X. Of this full amount, Lumen will pay HJF/NMRC up to $2.5 million to support testing of the effectiveness of the Lumen spirulina product. NMRC will test the product's effectiveness combating antibiotics resistance by testing directly against the pathogen strains through the development of animal models of disease with the eventual goal of testing effectiveness in humans.

**"By capitalizing on our expertise in developing preventive therapies against Campylobacter and ETEC, and with Lumen's innovative spirulina technology, we will be able to quickly progress this anti-diarrheal product from bench to bedside," says Dr. Laird.**



# MHRP Helps Expand PEPFAR Services to the Philippines

The Military HIV Research Program (MHRP) at the Walter Reed Army Institute of Research (WRAIR) supported efforts to expand PEPFAR-funded HIV prevention, care, and treatment services in the Philippines in 2021.

The President's Emergency Plan for AIDS Relief (PEPFAR) is a U.S. government initiative to aid the global HIV/AIDS response. It is the largest commitment by any nation to address a single disease in history, saving over 20 million lives, preventing millions of HIV infections, and accelerating progress toward controlling the global HIV/AIDS epidemic in more than 50 countries. HJF Medical Research International (HJFMRI), a wholly-owned subsidiary of HJF, provides key support to PEPFAR.

The new military-military PEPFAR activities in the Philippines will support lab strengthening, clinical training, and diagnostic capabilities. Although the primary focus is on HIV, these capabilities can also combat other health threats as well as reinforce existing partnerships.

The Philippines PEPFAR program will be led by the Armed Forces Research Institute for Medical Sciences (AFRIMS) under the auspices of the Department of Defense HIV/AIDS Prevention Program (DHAPP). AFRIMS, a Special Foreign Activity of WRAIR, has been working in the Philippines since 2011 and has an established relationship with the Armed Forces of the Philippines. AFRIMS scientists and physicians have developed diagnostics, preventives, and therapeutics against infectious diseases for nearly 60 years.

The program will leverage current infrastructure and contracting mechanisms established by AFRIMS to support research in the region. MHRP will support this new initiative by providing technical and programmatic assistance.

DHAPP, established in 2003, helps foreign military partners with the development and implementation of culturally focused, military-specific HIV/AIDS prevention, care, and treatment programs in more than 55 countries around the globe.

# Treating Patients by Removing Pathogens from Their Blood

A new blood cleansing medical countermeasure capable of responding to infectious outbreaks is currently the focus of an evaluation led by Dr. Kevin Chung and Dr. Danielle Clark. The study is based on data from Dr. Chung during his oversight of two patients who received this therapy in April 2020 and the over 175 patients who have been treated across the United States under FDA's Emergency Use Authorization since that time.

Dr. Chung, a retired Army Colonel and Chair of the Uniformed Services University of the Health Sciences (USU) Department of Medicine, serves as principal investigator. Dr. Clark, an HJF scientist, is Director (and co-founder) of the Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO) program, which is administered by HJF, serves as an associate investigator.

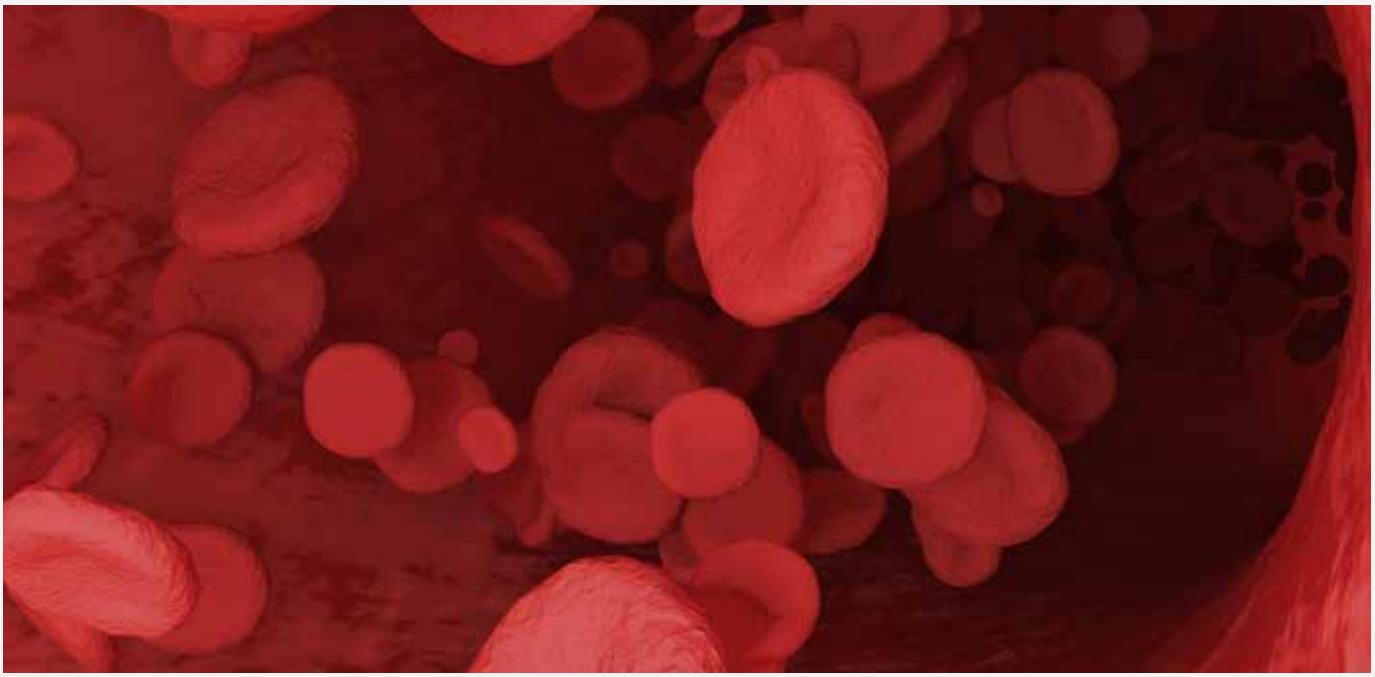
The manufacturers of two devices—ExThera Medical of California and BOA Biomedical, Inc., of Boston—are also participating in the evaluation, which is taking place at Walter Reed National Military Medical Center, as well as at non-military hospitals. The aim of each device is to purify the blood of pathogens, such as viruses and bacteria, and also of substances that can trigger a potentially fatal inflammatory cascade in COVID-19 patients.

Seraph® 100, which was developed by ExThera, is designed to rapidly and safely remove a broad spectrum of pathogens and sepsis mediators from blood to address the ongoing drug resistance crisis and pandemics like COVID-19.

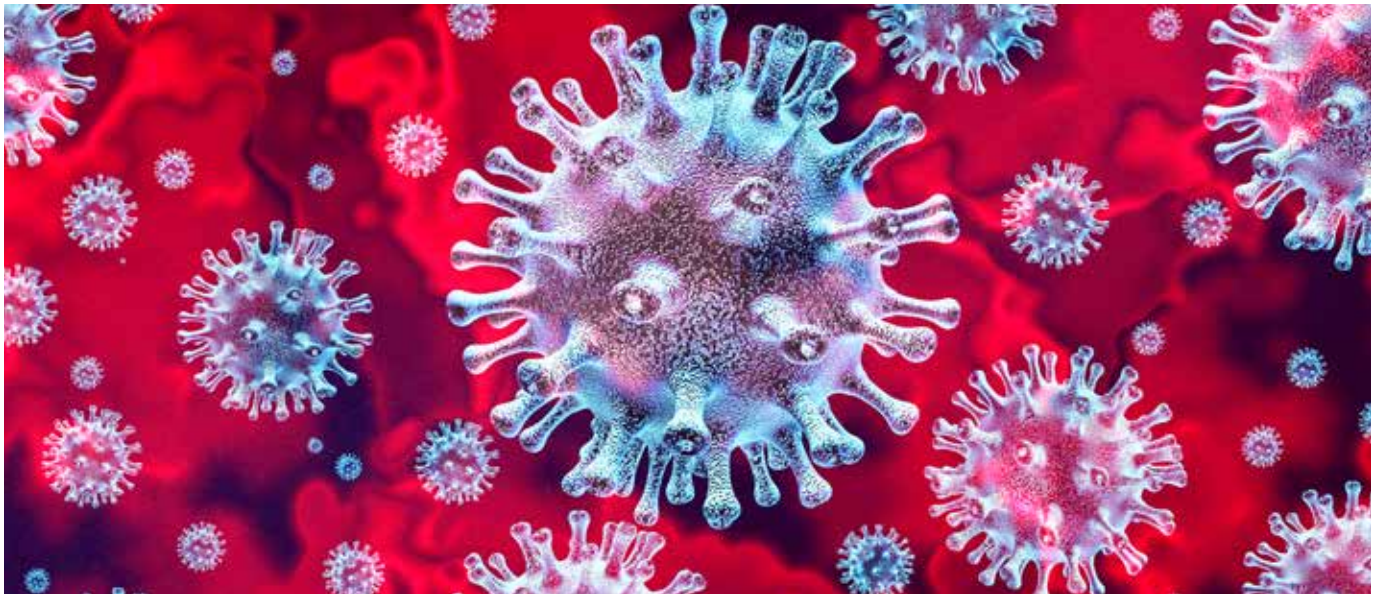
BOA's technology has been shown to capture more than 100 clinically relevant pathogens across bacteria, fungi, parasites, viruses (including SARS-CoV-2), and toxins in the laboratory. This technology also addresses the growing emergence of antibiotic-resistant bacteria, including sepsis, which existing therapies cannot combat.

Despite the availability of these treatments, some doctors say additional clinical trial data is needed to more firmly establish blood purification as a treatment for COVID-19. This Department of Defense study could bolster its use in treating COVID-19 and for severe infections in general.

**"ACESO specializes in utilizing biomarkers to anticipate the likelihood of severe infection," said Dr. Clark. "We are proud to apply our expertise to support this crucial work."**



# STORMCHASER: Preventing COVID-19 Following Exposure



Several scientific trials have been studying long-acting antibody combinations to prevent COVID-19 in participants recently exposed to the SARS-CoV-2 virus. The focus of some of these trials is AZD7442, which is a combination of two long-acting antibody combinations—tixagevimab (AZD8895) and cilgavimab (AZD1061). Derived from B cells donated by convalescent patients with SARS-CoV-2 virus, AZD7442 was discovered by Vanderbilt University Medical Center and subsequently licensed to AstraZeneca.

**"Data from pre-clinical experiments has showed the long-acting antibody combinations were able to block the binding of the SARS-CoV-2 virus to host cells and protect against infection in cell and animal models of disease," said Dr. Simon Pollett, an HJF research scientist.**

As Associate Scientific Director and COVID-19 Research Area Director at the Infectious Diseases Clinical Research Program at the Uniformed Services University, Dr. Pollett was the trial protocol chair for four Military Treatment Facility sites which participated in the trial known as STORMCHASER (Study To Optimally Reduce Morbidity in Care Homes And Sites with Enhanced Risk).

STORMCHASER was a Phase 3, randomized, double-blind, placebo-controlled, multicenter trial. "While the STORMCHASER trial did not achieve the hoped-for results for the prevention of symptomatic COVID-19 after exposure, the results suggest that AZD7442 may be useful as a pre-exposure preventive measure," said Dr. Pollett.

**"Our research team was encouraged by the protection seen for some participants, as well as the safety profile of this product."**

Two additional trials—PROVENT and TACKLE—will help researchers better understand the potential role of AZD7442 in preventing or treating COVID-19. AstraZeneca has announced an extended agreement with the federal government to supply up to 500,000 additional doses of AZD7442 contingent upon receiving FDA emergency use authorization.

# The Army's SpFN COVID-19 Vaccine Advances to Phase 1 Clinical Trial

The Emerging Infectious Diseases Branch (EIDB) at Walter Reed Army Institute of Research (WRAIR) began a Phase 1 clinical trial of their vaccine candidate to combat SARS-CoV-2 in April 2021. The vaccine, called Spike Ferritin Nanoparticle (SpFN), is a nanoparticle vaccine based on a ferritin platform that offers a flexible approach to target multiple variants of SARS-CoV-2 and potentially other coronaviruses as well.

SpFN is a vaccine candidate that is tracked by the U.S. Federal COVID-19 response and stands out in the COVID-19 vaccine landscape with its multi-faced sphere design that allows repetitive, ordered presentation of the coronavirus spike protein to the immune system, which may help provide broader protection. Pre-clinical studies indicate that SpFN induces highly potent and broadly neutralizing antibody responses against multiple strains, including the initial strain that causes COVID-19 infection, but also three major SARS-CoV-2 variants of concern and the more deadly, SARS-CoV-1 virus.

The SpFN vaccine candidate could pave the way for this approach to work as a universal coronavirus vaccine, or a booster to the SARS-CoV-2 vaccines in current use. Early results from the Phase 1 trial are expected in 2021.

**"The emergence of SARS-CoV-2 variants stresses the continued need for next-generation vaccines that confer broad protection against coronavirus disease," said Dr. Kayvon Modjarrad, EIDB's Director, who leads the Army's COVID-19 vaccine research efforts.**

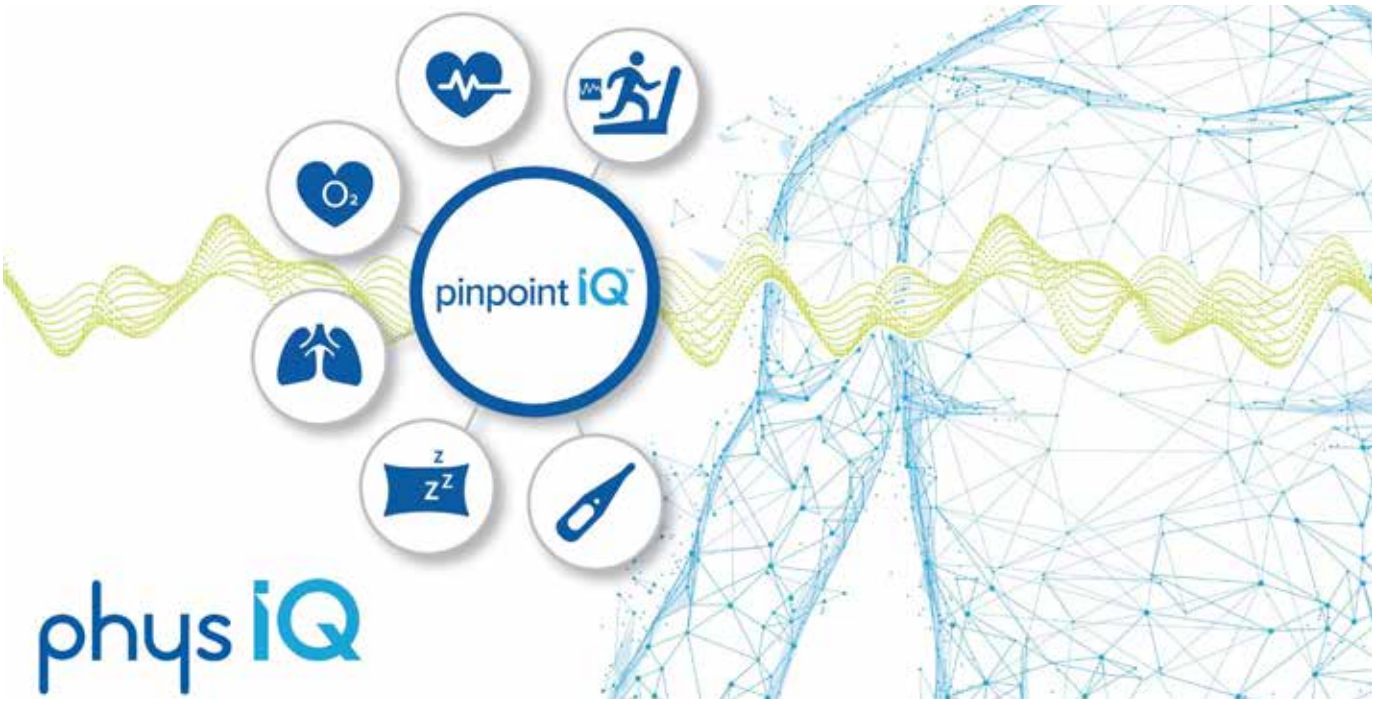
"Our strategy has been to advance a 'pancoronavirus' vaccine technology that will offer safe, effective protection against multiple variants and even other coronaviruses."

SpFN is paired with an Army-patented adjuvant called the Army Liposome Formulation (ALF) that was developed by scientists within the Military HIV Research Program at WRAIR and has generated strong immune responses in preclinical studies. This adjuvant is also being tested in a Phase 1 clinical trial with two malaria vaccine formulations. Vaccine development began in early 2020 with mapping of structure of the coronavirus spike protein at an atomic scale.

**"This detailed understanding of the structure has been critical to vaccine discovery and small molecule development efforts," said Dr. Gordon Joyce, HJF scientist and Chief of Structural Biology at WRAIR's EIDB.**

HJF has supported WRAIR's EIDB since its establishment in 2018. HJF staff within EIDB have played critical roles at various steps in the development of the SpFN vaccine, including scientific strategy, vaccine production and pre-clinical testing, laboratory and regulatory support and study administration.

# Using Wearable Sensor Data to Fight COVID-19




HJF is currently conducting a study to assess the role of continuous biosensor data to help fight COVID-19. Dr. Danielle Clark, Director (and co-founder) of the Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO) program, which is administered by HJF, serves as the program principal investigator of the DoD-funded initiative for Outbreak Clinical Trials.

Continuous monitoring with sophisticated personalized algorithms is being used to evaluate physiologic signals to predict disease progression, early indication of infection, and potentially evaluate novel treatments for COVID-19.

**"We are monitoring hundreds of individuals infected with SARS-Cov-2 and high-risk contacts, as well as frontline healthcare workers, in order to develop tools to improve clinical management decision-making," said Dr. Clark.**

Researchers are using a platform developed by PhysIQ, a digital medicine company, to collect and analyze physiological data acquired from wearable biosensors. Duke University Hospital, Johns Hopkins Hospital, and Bayview Medical Center are all participating in the study. The study will build on an ongoing study in collaboration with Tripler Army Medical Center and the Naval Health Research Center. As hospital capacity has been particularly challenged during the pandemic, this novel technology could offer the potential of delivering COVD-19 treatment at home.

"Given the challenge of what appears to be an ever-evolving virus, the opportunity to deploy cutting-edge technology to study COVID-19 is paramount to ultimately understanding its progression and aid in the fight to defeat it," said Dr. Clark.

**"With wearable biosensors and advanced analytics, we can better understand and treat this disease."**

# CAMRIS Supports WRAIR's Pilot Bio-Production Facility

CAMRIS Military Health & Research works with the Walter Reed Army Institute of Research (WRAIR) and the U.S. Army Research Acquisition Activity (USAMRAA) for operational support and capabilities enhancement of the Pilot Bioproduction Facility (PBF) as part of a 10-year agreement. WRAIR PBF represents the only DoD vaccines and biologics manufacturing capability within the DoD. It serves as a valuable national resource that quickly and cost-efficiently accelerates the development of medical countermeasure projects and programs. In FY21, CAMRIS assisted WRAIR in bringing the recently retrofitted facility online to produce the Army's Spike Ferritin Nanoparticle (SpFN) vaccine. The SpFN vaccine manufactured and filled at PBF went into Phase 1 clinical trials in February 2021. Additional 2021 PBF accomplishments include multiple interagency and private sector vaccine and therapeutic developments and productions.

CAMRIS and HJF program teams are developing, implementing, and optimizing mRNA vaccines and antibody therapeutics as additional WRAIR capabilities. Another area of focus is the Pilot Production Business Process that supports, promotes, and sustains the translational capabilities of WRAIR to deliver next-generation medical countermeasures. CAMRIS assists in creating a business process for collaborative partnerships with internal and external customers that generate project funding to ensure a fiscally responsible approach to optimizing the breadth of PBF capabilities.

CAMRIS, an HJF wholly owned subsidiary, is a Bethesda, Maryland-based health research and development firm.

## Dr. Danielle Clark

HJF's Dr. Danielle Clark, Director and co-founder of Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO) program, is key to the program's success.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SECTION 5

# Financials

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

**Chief Financial Officer**
**Henry M. Jackson Foundation for the Advancement of Military Medicine**
6720A Rockledge Drive, Suite 100
Bethesda, Maryland, 20817

The financial information expressed here represents unaudited preliminary statements for fiscal year 2021. Take a look at our consolidated statement of activities and consolidated statement of financial position.

## HJF Quick Facts

**99.3%**

**OF HJF'S EXPENSES GO TO THE MISSION**

## Brenda Jamison

Brenda Jamison makes a difference at HJF supporting the Home Office's Financial Planning Department as a Senior Budget Officer.

# Additional Funding Sources

## (Over $50,000)

Advanced Technology International

AIDS Clinical Trials Group (ACTG) at UCLA

Angelman Syndrome Foundation

Applied Research Associates

AstraZeneca Pharmaceuticals

Boehringer Ingelheim

Brigham and Womens Hospital

Carl Zeiss Meditec AG

Centene Management Company

Centers for Disease Control and Prevention

Department of Veterans Affairs

Design Interactive

Eeohealth Alliance

Embody

Emory University

Fisher House Foundation

Foundation for a Smoke Free World

Fred Hutchinson Cancer Research Center

Glacier Support Services LLC

GlaxoSmithKline Biologicals SA

Google

Henry M Jackson Foundation for the Advancement of Military Medicine

Humana

International AIDS Vaccine Initiative

IQVIA RDS

Johns Hopkins University

Leidos

Limmatech Biologics AG

Lockheed Martin

Lumen Biosciences

Mechdyne

National Aeronautics and Space Administration

National Endowment for the Arts

National Multiple Sclerosis Society

National Cancer Institute

National Institute of Allergy and Infectious Diseases

National Institute of General Medical Sciences

National Institutes of Health

National Institute of Neuro Disorders and Stroke

Oxford University

Parsons Global Services

Pasteur Institute

Sana Biotechnology

Seattle Genetics

Syneos Health

The Administrators of the Tulane Educational Fund

The Children's Hospital of Pennsylvania

The Geneva Foundation

The Metis Foundation

Uniformed Services University of the Health Sciences

United Concordia

University of Miami

University of North Carolina at Chapel Hill

University of Notre Dame

U.S. Air Force Research Laboratory

U.S. Army Medical Research Acquisition Activity

U.S. Army Warfighter Refractive Surgery Research

Verily Life Sciences

W40M Regional Health Contracting of Regional Health Contracting Office Pacific

Walter Reed Army Institute of Research

Western Institute for Veterans Research

Zoological Society of London Insitute of Zoology

# Consolidated Statement of Activities

## Unaudited

**YEAR ENDED SEPT. 30, 2021**

## Revenues

| | | |
|---|---|---|
| Contributions | $ | 1,001,688 |
| Grants and contracts | | 561,722,497 |
| Investment income | | 16,108,839 |
| Licensing fees and other | | 2,167,333 |
| Net assets released from restrictions and transfers | | - |
| **TOTAL REVENUES** | | **581,000,357** |

## Expenses

| | |
|---|---|
| Program services | |
| Research grants and contracts | 503,012,669 |
| Other program activities | 51,377,770 |
| Endowment and similar programs | 1,538,283 |
| Special projects | 492,765 |
| **TOTAL PROGRAM SERVICES** | **556,421,487** |
| **TOTAL SUPPORT SERVICES** | **8,247,187** |
| **TOTAL EXPENSES** | **564,668,674** |
| **CHANGE IN NET ASSETS** | **16,331,683** |
| **NET ASSETS, BEGINNING OF YEAR** | **143,029,805** |
| **NET ASSETS, END OF YEAR** | **$ 159,361,488** |

# Consolidated Statement of Financial Position

## Unaudited

**AS OF SEPT. 30, 2021**

## Assets

| | | |
|---|---|---|
| Cash and cash equivalents | $ | 56,944,705 |
| Grants and contracts receivable, net | | 127,490,921 |
| Prepaid expenses and other current assets | | 10,268,942 |
| Investments | | 71,604,265 |
| Property and equipment, net | | 11,021,031 |
| Goodwill and intangible assets | | 5,483,774 |
| Other assets | | 5,611,805 |
| **TOTAL ASSETS** | **$** | **288,425,443** |

## Liabilities

| | |
|---|---|
| Accounts payable and accrued expenses | 62,160,104 |
| Accrued leave and benefits | 25,829,766 |
| Deferred revenue | 16,631,645 |
| Deferred rent | 14,099,377 |
| Other payables | 10,343,063 |
| **TOTAL LIABILITIES** | **129,063,955** |

## Net Assets

| | |
|---|---|
| Without donor restriction | 102,589,664 |
| With donor restriction | 56,771,824 |
| **TOTAL NET ASSETS** | **159,361,488** |
| **TOTAL LIABILITIES & NET ASSETS** | **$ 288,425,443** |


hjf

**THE HENRY M. JACKSON FOUNDATION FOR THE ADVANCEMENT OF MILITARY MEDICINE, INC.**

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