



# Fighting COVID-19

## Through Research

Shortly after the COVID-19 threat was identified, the Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. (HJF) joined its military partners and other medical researchers around the world in the race to find a vaccine and treatments. With significant experience studying HIV, Ebola, anthrax, malaria, SARS-CoV, MERS, H1N1, and Zika, HJF is especially well positioned for studying infectious diseases.

A global nonprofit with a presence in more than a dozen countries, HJF partners with the military, government, academia, and industry to provide scientific, administrative, and program management support to researchers, investigators, and clinicians. Our strength is conducting and administering research at domestic and international sites.

### Prevention: Vaccine Development and Testing

HJF brings nearly four decades of organizational experience to the search for an effective vaccine to prevent COVID-19. With the Department of Defense, the National Institutes of Health and others, we help maintain a clinical research infrastructure for vaccine development and testing around the world.

In collaboration with the Emerging Infectious Diseases Branch of the Walter Reed Army Institute of Research, HJF is currently assisting with the development of a COVID-19 vaccine. The research team recently announced the selection of a lead COVID-19 vaccine candidate and two backups to advance manufacturing for human clinical trials.

*\*HJF supported the Walter Reed Army Institute of Research in the development of the ALFQ adjuvant, which will be used by the COVID-19 vaccine to increase the immune response.*

### Epidemiology: Ongoing Pathogen Studies

HJF offers a wide range of knowledge in the epidemiological study of disease outbreaks. Our support of international clinical research sites and laboratories enables military and civilian scientists to identify, anticipate and counter emerging infectious disease threats.

Working with the Infectious Disease Clinical Research Program of the Uniformed Services University of the Health Sciences and the Joint Executive Program Office, HJF is helping to develop a contingency protocol for the Military Health System for clinical investigation of COVID-19 and other potentially severe acute infections. The protocol, which defines a systematic approach to the collection of clinical specimens, is currently active at six Military Treatment Facilities.

*\*HJF collaborated with Naval Medical Research Unit Two, a U.S. Navy biomedical research laboratory based in Cambodia, in studying severe acute zoonotic pathogens at civilian hospitals in Cambodia, Singapore and Thailand.*

### Diagnostics: Identifying Early Biomarkers

HJF has a long history of developing high-throughput diagnostics for viral diseases. With the Department of Microbiology and Immunology at the Uniformed Services University, we are studying viral and cellular gene expression and host responses to viral infection, which can be adapted to support COVID-19 capabilities to produce proteins in bacterial and higher cells. This work will make it possible to express COVID-19 proteins for diagnostic purposes.

In collaboration with the Naval Health Research Center, HJF is also part of a prospective, longitudinal study designed to identify early biomarkers. Finding early biomarkers makes it possible to identify COVID-19 infections and help predict disease progression.

*\*To identify possible COVID-19 infections, the biomarker study is targeting non-shipboard active duty military and their beneficiaries stationed in San Diego and Honolulu.*

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## Screening: An Important Component for Preventing Viral Diseases

Preventing viral diseases requires careful screening. With several decades of experience in various locations around the world, HJF provides a deep skill-set for this critical process.

With the Department of Defense and physIQ, a company that specializes in collecting and analyzing continuous physiological data collected from wearable biosensors, HJF launched an initiative to deploy physIQ's platform to better understand COVID-19. Continuous monitoring with sophisticated algorithms will be used to evaluate physiologic signals to predict disease progression as well as early indication of infection and potentially evaluate novel treatments for COVID-19.

*\*During the Ebola outbreak in Liberia, HJF created a test kit for screening, helped set up a mobile lab and performed on-site tests that allowed non-positive patients to leave the hot zone more quickly.*

## Treatment: Remdesivir and Other Promising Drugs

HJF is currently supporting research on a variety of treatments for COVID-19. Along with the Walter Reed Army Institute of Research, we are helping to analyze a variety of promising drugs, including identifying and characterizing monoclonal antibodies, a type of immunotherapy that may treat and help prevent infection.

Remdesivir, an antiviral medication currently being tested as a treatment for COVID-19, is another promising research area. Through our support of the Infectious Disease Clinical Research Program at the Uniformed Services University, HJF is supporting ongoing research related to Remdesivir.

*\*The Walter Reed Army Institute of Research has screened more than 40 million compounds in its search for a COVID-19 treatment.*

## Mental Health: Addressing the Impact of Social and Physical Distancing

In recognition of the increasing demand for mental health resources related to the COVID-19 pandemic, HJF works with numerous specialists, including psychologists and psychiatrists, with expertise in disaster health, disaster management and public health.

Our mental health resources are designed to address symptoms for the general public—anxiety, depression, grief, family stress, isolation and loneliness—as well as for healthcare providers—increased workload, patient mortality and other issues—related to COVID-19.

*\*The National Center for Disaster Medicine and Public Health, in collaboration with HJF, compiled "A Guide to Support the Well-Being of Healthcare Personnel During a Time of Crisis."*

## Global Response: Medical Research in More Than a Dozen Countries

HJF supports numerous international clinical research sites and laboratories that enable military and civilian scientists to identify, anticipate and counter emerging infectious disease threats. With the Armed Forces Research Institute of the Medical Sciences, which is part of the Walter Reed Army Institute of Research, HJF currently contributes to COVID-19 diagnostics and surveillance in Thailand.

We have also played a key role in the development of research infrastructure at more than a dozen sites in African countries. Many of these HJF-supported research laboratories are being leveraged for COVID-19 testing and substantially expand regional testing capabilities.

## Success Story: In Pursuit of Low Cost and Easily Manufactured Ventilators

In response to the growing need for ventilators to treat COVID-19 patients, the Defense Health Agency and the COVID-19 Joint Acquisition Task Force in the Department of Defense issued a challenge to develop low cost and easily manufactured devices. Five of nearly 200 designs submitted by industry, universities, government agencies, and individuals were selected for further development.

In collaboration with the Uniformed Services University of the Health Sciences, HJF helped evaluate these emerging ventilator technologies. Data from these evaluations will be used for further refinement of these innovative devices with the goal of mass production.