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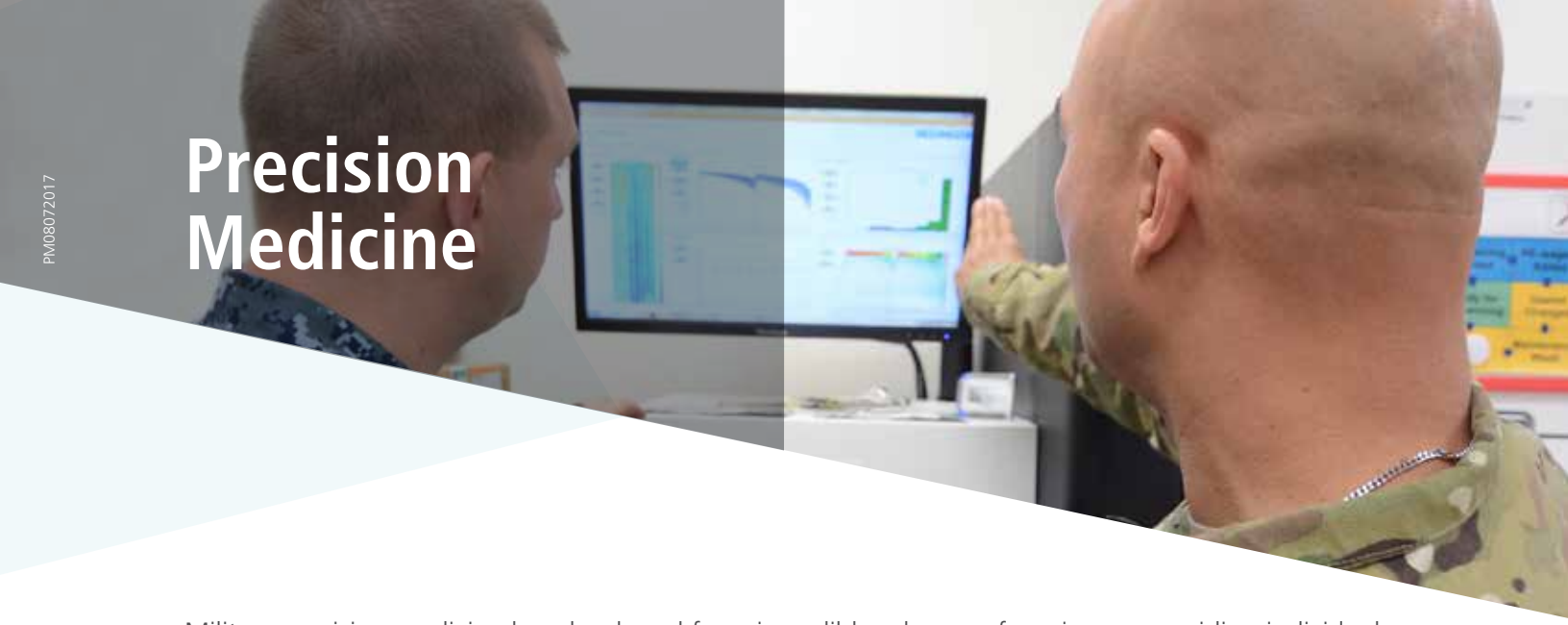
Precision Medicine



Military precision medicine has developed from incredible advances focusing on providing individuals with customizable treatments. HJF-supported research programs and facilities are leading the advancement in precision medicine by developing data-driven decision-making tools for military and civilian surgeons, and identifying disease-susceptibility genomic fingerprints through comparative whole genome sequencing.

Surgical Critical Care Initiative

The Surgical Critical Care Initiative (SC2i) was established in 2013 to develop data-based decision-making tools to help physicians know the best treatments to employ and when to use them, allowing them to save lives and improve recovery for their military and civilian patients. Approaches developed by the initiative are expected to reduce costs and improve the quality of care for the critically ill across many disciplines, including surgery, critical care, emergency medicine, orthopedics, transplantation and oncology.

Funded by the Defense Health Program, SC2i brings together clinicians and scientists to gather and analyze information ranging from simple observation to bio-banked tissue samples. These data are used in computerized statistical models that produce decision guidance tools.

Several organizations lend expertise to the initiative, including the Uniformed Services University of the Health Sciences, Emory University School of Medicine, Duke University School of Medicine, Naval Medical Research Center, Walter Reed National Military Medical Center, DecisionQ and HJF.

Collaborative Health Initiative Research Program

HJF provides scientific, technical, administrative and programmatic leadership to the Collaborative Health Initiative Research Program (CHIRP), an interagency endeavor between the Uniformed Services University of Health Sciences (USU) and the National Institutes of Health's National Heart Lung and Blood Institute (NHLBI). CHIRP supports joint research efforts to predict and pre-empt disease, mitigate and repair traumatic injury, optimize performance and resilience, and generate therapeutic options in heart, lung, blood and sleep (HLBS) disorders.

The collaboration leverages emerging technology in whole genome sequencing and "big data" science to promote precision medicine and predictive health. CHIRP aims to:

- Identify novel genes influencing common, complex and rare HLBS disorders using whole genome sequencing approaches in families, cases (case-control designs) and cohorts of populations
- Use functional genomics to identify roles of HLBS-associated genetic variants in gene regulation.

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