



AN OSF HEALTHCARE,
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
AND UNIVERSITY OF ILLINOIS COLLEGE OF
MEDICINE PEORIA COLLABORATION

Jump ARCHES Spring Grants Focus on COVID-19 Solutions

For Immediate Release

Contact: [Colleen Reynolds](#) | Media Relations Coordinator – OSF HealthCare | (309) 825-7255

(April 14, 2021/PEORIA, ILLINOIS) – Seven research projects are sharing slightly more than \$400,000 in funding through the [Jump ARCHES research and development program](#) to address challenges and expand on lessons learned about COVID-19 vaccinations and testing. The Jump ARCHES program is a partnership between OSF HealthCare and The Grainger College of Engineering at the University of Illinois Urbana-Champaign (U of I) and the University of Illinois College of Medicine in Peoria (UICOMP).

The funding supports research involving clinicians, engineers and social scientists to rapidly develop technologies and devices that could revolutionize medical training and health care delivery. A requirement of the grant applications was for solutions that could be deployed quickly, within four to six weeks. Investigators were also encouraged to consider how to best mitigate the impact of age, location, and social barriers in delivering quality health care to vulnerable populations.

“The outcomes of these projects will help with issues arising from the current pandemic and help physicians apply lessons learned in the post-COVID health care landscape,” said Seth Stutzman, coordinator for the Jump ARCHES grant program.

“With the UK variant now the predominant virus in the U.S., it is critical that we leverage the talent at [Jump Trading Simulation and Education Center](#) in Peoria and the brilliant minds within engineering, technology and social science at the U of I. This will help us quickly find much-needed solutions to address the challenges health care faces in developing policies and procedures for mass vaccination, health care delivery, quality and patient safety improvements,” said John Vozenilek, MD, vice president for Innovation and Digital Health at Jump and OSF HealthCare. Vozenilek is also a professor at the University of Illinois in Peoria and Urbana-Champaign.

“As we develop new vaccines and treatments for COVID-19, it’s also important to take into account societal factors such as age, race, location, infrastructure, and how to best provide for underserved populations. We expect significant changes in how health care is delivered so that it is more accessible for all and are proud to fund projects that spearhead these developments,” said T. Kesh Kesavadas, Ph.D., director of the Health Care Engineering Systems Center at the University of Illinois Urbana-Champaign.

Here are summaries of some key projects, with a full list of spring 2021 projects available in the [Jump ARCHES website](#).

Every shot counts: Development of a novel predictive model and toolkit to predict and decrease vaccine-preventable rural COVID-19 deaths

Investigators: Jimeng Sun, PhD, University of Illinois at Urbana-Champaign; Scott Barrows, MA, FAMI, University of Illinois at Chicago (UIC), University of Illinois College of Medicine Peoria (UICOMP), OSF HealthCare; Adam Cross, MD, FAAP, OSF HealthCare, UICOMP; Ann Willemsen-Dunlap, CRNA, PhD, OSF HealthCare, UICOMP; and Mary Stapel, MD, OSF HealthCare

Currently, 12% of the U.S. population has received at least one COVID-19 vaccine, which is below the projected 70-90% required to achieve herd immunity to the virus. This project aims to develop a predictive model to predict vaccine-preventable deaths in each county in the U.S. and the most likely reasons for vaccine hesitancy among populations. A toolkit will help guide rural populations in their decision-making about accepting the COVID-19 vaccine.

Human factors in the use of telepresence robots after the COVID-19 pandemic

Investigators: Inki Kim, PhD, U of I; Thenkurussi (Kesh) Kesavadas, PhD, U of I; Jon Michel, MD, OSF HealthCare; and Shandra Jamison, MA, RRT, U of I

The COVID-19 pandemic outbreak resulted in an increase in telemedicine visits to prevent the spread of the virus. The goal of this concept is to establish, justify and optimize a set of existing or new-use cases for telepresence robot use in telemedicine to reduce the risk of in-hospital transmission of COVID-19, as well as for continued quality of care delivery in the post-COVID-19 era.

Early insights and recommendation for implementing a COVID-19 saliva-based testing program in K-12 schools: Lessons learned from four under-resourced schools

Investigators: Rebecca Lee Smith, DVM, MS, PhD, U of I; Thanh (Helen) Nguyen, PhD, U of I; Nicole Delinski, DNP, MSN, RN, OSF HealthCare; Michaelene Ostrosky, PhD, U of I; and W. Catherine Cheung, PT, PhD, U of I

With the goal of successfully reopening K-12 schools and keeping them open, this proposed plan will work to gain a better understanding of the acceptability, feasibility and effectiveness of implementing saliva-based testing in under-resourced schools, as well as parental behavior of deciding to allow their children to return to in-person learning.

Voice vitals: A new approach for anxiety and depression screening in the era of COVID-19

Investigators: Mary Pietrowicz, PhD, U of I; Ryan Finkenbine, MD, UICOMP, OSF HealthCare; and Sarah Donohue, PhD, UICOMP

Existing systems fall short in identifying and treating individuals with anxiety disorders and major depressive disorders due to a variety of issues, including people not seeking medical attention, attitudinal barriers like stigma, and structural barriers such as a lack of providers. This proposal aims to develop a prototype of machine models that can listen to speech and language and automatically screen for anxiety and depression disorders.

See the complete list of the [latest Jump ARCHES grant projects](#).

For photos connected to this release, please [visit the OSF Newsroom](#) to download assets available there.

###

OSF HealthCare is an integrated health system owned and operated by [The Sisters of the Third Order of St. Francis](#), Peoria, Illinois. OSF HealthCare employs more than 23,600 Mission Partners in 147 locations, including 14 hospitals – 10 acute care, four critical access – with 2,097 licensed beds, and two colleges of nursing throughout Illinois and Michigan. The OSF HealthCare physician network employs more than 1,500 primary care, specialists and advanced practice providers, who are part of the [OSF Medical Group](#). OSF HealthCare, through [OSF Home Care Services](#), operates an extensive network of home health and hospice services. It also owns Pointcore Inc., comprised of health care-related businesses; [OSF HealthCare Foundation](#), the philanthropic arm for the organization; and [OSF Ventures](#), which provides investment capital for promising health care innovation startups.

Jump Trading Simulation and Education Center, a part of [OSF Innovation](#), is a collaboration between University of Illinois College of Medicine at Peoria and OSF HealthCare. Jump replicates a variety of patient care settings to ensure novice and seasoned clinicians can practice handling medical situations in a real-world environment. Boasting six floors and 168,000 square feet, the center is one of the largest of its kind and provides space for conferences, anatomic training, virtual reality and innovation. For more information, visit www.jumpsimulation.org.

Partners in Jump ARCHES

University of Illinois College of Medicine Peoria (UICOMP) educates 244 medical students and nearly 300 physician residents annually. The College of Medicine is home to the Cancer Research Center, the Center for Outcomes Research and is a collaborator in Jump Simulation. Learn more about UICOMP at <http://peoria.medicine.uic.edu>.

Health Care Engineering Systems Center (HCESC) Engineering provides clinical immersion and fosters collaboration between engineers and physicians. HCESC designs collaborative solutions to improve health care outcomes utilizing their expertise in simulation technologies, smart health systems, data analytics, human factors and medical robotics. HCESC partners with Jump in this innovative relationship of Applied Research for Community Health through Engineering and Simulation (ARCHES). HCESC is a research center in The Grainger College of Engineering at the University of Illinois. Learn more about HCESC at <https://healtheng.illinois.edu/>.

University of Illinois Grainger College of Engineering is one of the world's top-ranked engineering programs with students, faculty and alumni that set the standard for excellence. The college is focused on driving the economy, reimagining engineering education and bringing revolutionary ideas to the world. They work to solve the world's greatest challenges and look toward the future to find ways to make the solutions reality. Learn more about the College of Engineering at <https://engineering.illinois.edu/>.

The Center for Social and Behavioral Science (CSBS) at the University of Illinois was created to help address some of the grand challenges facing society that can be answered using the deep social and behavioral science expertise housed at U of I. In particular, the CSBS focuses on three distinct areas: 1) solving poverty, 2) understanding the effect of technology on society and 3) the role of social and behavioral factors in health. More information can be found at <https://csbs.research.illinois.edu/>.

