THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

NEWS

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FDA APPROVES COVID-19 INNOVATIONS; OHIO STATE MEDICAL CENTER TO SHARE NATIONWIDE

COLUMBUS, Ohio –The Food and Drug Administration has approved solutions created by scientists at The Ohio State University Wexner Medical Center that both expand and accelerate COVID-19 testing across Ohio.

Health systems worldwide have struggled because of the critical shortage of test kit components, including the swabs used to collect samples and the sterile solution needed to transport the swabs. The testing kits include the swabs and vials filled with a liquid called viral transport media (VTM).

Recognizing the threat, a rapidly assembled team of Ohio State researchers worked overnight and, within 24 hours, created an in house “recipe” to make the crucial VTM. Essentially, it’s a salt solution buffered in the way necessary to stabilize the virus.

In addition, the Ohio State Wexner Medical Center and Ohio State’s Center for Design and Manufacturing Excellence, Infectious Diseases Institute, and Institute for Materials Research, collaborated with a national consortium that rapidly deployed a design and testing program for 3D printed testing swabs.

Ohio State is part of the academic-industry-government consortium led by Harvard that designed the swabs. Ohio State’s College of Dentistry and Battelle are also involved in this project, along with doctors and nurses from Ohio State’s Emergency Department and COVID-19 testing tents who volunteered as test subjects to confirm the new swab as an adequate collection device.

Ohio State is partnering with several outside firms in Ohio to create the 3D printed swabs. By mid-April, the first order of 3D printed swabs for COVID-19 test kits will be delivered to Ohio State to be shared with hospitals across Ohio, allowing more people to be tested. Ohio State will continue to work on eliminating swab manufacturing and design constraints through a rapid product development cycle, including clinical testing.

“We’re fortunate to have the scientists and the resources at Ohio State’s seven health sciences colleges and across campus to create these vital materials and to be able to serve other hospital systems in Ohio and around the country that need them,” said Dr. Hal Paz, executive vice president and chancellor for Health Affairs at The Ohio State University and CEO of the Ohio State Wexner Medical Center. “This is what Buckeyes do. We collaborate to solve society’s biggest problems. We’re all in this together.”

In mid-March, Peter J. Mohler, vice dean of research at The Ohio State College of Medicine and director of the Dorothy M. Davis Heart and Lung Research Institute, asked a diverse team of immunologists, microbiologists, pathologists and pharmacists to create this new solution. He asked Jacob Yount in the Department of Microbial Infection and Immunity to lead the project.

Yount found a Centers for Disease Control and Prevention recipe that he and Ana Sarkar and Amit Sharma in the Department of Internal Medicine were able to re-create in a lab at Ohio State’s Biomedical Research Tower. Yount’s research team shared the VTM with the pathology department for quality-control testing and the pharmacy team for packaging in sterile tubes. The supply chain department distributed these to the testing sites and emergency departments for use. The lab has continued to expand to produce VTM for healthcare teams around the state.

Each test kit uses about 3ml (about one tablespoon) of VTM. Ohio State has created more than 100 liters of VTM, which is enough for up to 30,000 test kits, Mohler said. Ohio State continues to use commercially produced VTM when it is available, but it’s unfortunately still in short supply.

“Because of this new viral transport media, thousands of people will be tested for COVID-19 who otherwise would have had no other option,” said Dr. Andrew Thomas, chief clinical officer at the Ohio State Wexner Medical Center. He said that sharing the VTM recipe and the actual solution with other health systems is key to making testing more widely available.

“This has been a team effort across the medical center, university and our colleagues across the state. The coronavirus crisis has mobilized the scientific community, and I’m pleased to see how quickly we’re exchanging ideas of what works and what doesn’t work,” Mohler said.

For example, last month Ohio State Wexner Medical Center and Battelle announced a jointly developed new rapid, sensitive diagnostic test for COVID-19. The Ohio State Wexner Medical Center is administering the

new test in alignment with FDA guidelines. The new rapid test allows for substantially faster turnaround time on test results and increased processing volume, which will help “flatten the curve.”

“Researchers at Battelle and Ohio State continue to work each day to refine the testing platform to increase accuracy, speed and capacity. Testing will continue to be critical both during the surge and the immediate future,” Mohler said.

Another example of ingenuity and creativity involves new protective plastic shields for use during intubation and extubation. Ohio State engineers, in collaboration with colleagues in the College of Medicine have made the portable shields for use during intubation and other aerosol-generating procedures, helping to shield our front-line providers. This device reduces the need for PPE during these procedures, conserving this vital equipment that’s in short supply nationwide.

Much more COVID-19 research is happening at Ohio State University, with almost 80 research projects underway across campus.

“As an academic health center, we have the unique ability to quickly move treatments and innovations from the lab to the bedside to help patients receive the most current treatments when they need it most,” Paz said. “This, combined with the unique collaborative culture of Ohio State and Columbus, has allowed us to accelerate these discoveries by leveraging all of our resources and talent around the common enemy of COVID-19.”

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