SUSTAINING MEMBER:

University of Nebraska – Lincoln

NAI member Wilhelm helps lead Nebraska's COVID mitigation efforts

It was in January of 2020 that Robert "Bob" Wilhelm remembers a novel coronavirus that originated in China first coming up in conversation among University of Nebraska-Lincoln administrators.

"Of course, we didn't really know what the extent would be," said Wilhelm, vice chancellor of UNL's Office of Research and Economic Development, known on campus as ORED. But it was clearly something to keep an eye on.

By mid-February, the university began seriously discussing and mobilizing for the virus. The first step: bringing UNL students and faculty home ahead of anticipated international travel shutdowns.

In March, UNL, like most universities, shifted to remote instruction and remote working for its employees. Strict guidelines for research and creative activity were implemented.

"It became clear there was something big going on," Wilhelm said. UNL formed campus wide and research-specific task forces to plan and implement measures, with Wilhelm playing a key role on both. The task forces coordinated closely with the Lincoln/Lancaster County Health Department and state officials. Other committees on campus formed to address academics, facilities and operations, information technology, and the many different facets of a large research university.

Meantime, Wilhelm and colleagues planned for fall 2020's resumption of in-person instruction and continued to adjust to the virus' changing nature with special mid-semester "winterim" classes and a slightly delayed spring semester. Throughout the process, he said, the safety of the UNL community and Nebraskans was No. 1.

Later, Wilhelm's ORED team took the lead on the campus' mandatory COVID-19 testing, starting with one site then expanding to 14, with tests being analyzed by the Nebraska Veterinary Diagnostic Center. Additional IT infrastructure was also implemented by UNL IT experts. When vaccines became available earlier this year, ORED worked with local health officials to coordinate vaccination sites.

At this writing, the fall 2021 semester is about a week away, as the delta variant increases the caseload in Nebraska and across the nation. All faculty, staff and students were required to take a re-entry COVID-19 test. "That's about 30,000 people in about 10 days," Wilhelm said.

The future course of the virus is unclear, but Wilhelm is proud of the university's performance.

"It really is a reflection of our expertise, experience and dedication on the ORED team. We are a go-to group for some fairly complex requirements that had to be implemented very quickly," Wilhelm said.

"I think that reflects well on ORED, but it also says something about the kind of work we do every day. Even prior to the pandemic, ORED is an organization that has many very experienced professionals, people that are quite comfortable working across the campus and working in situations that often are challenging in terms of both the people and the variety of interests that are play."

Wilhelm believes the lessons, partnerships, and communication approaches developed over the last year and a half will serve the university well.

"During the pandemic, we've really leaned on all of the people in the organization to be leaders and to take on responsibility and take action, and I have to believe that's going to have a positive impact on the university going forward," said Wilhelm, who was elected to NAI in 2018.

NAI member Farritor co-founds surgical robotics company

More than 400,000 Americans need colon resection procedures each year to treat lower gastrointestinal diseases such as diverticulitis, colon polyps, pre-cancerous and cancerous colon lesions, and inflammatory bowel disease.

Right now, the most common approach to colorectal procedures is open surgery—which requires a large incision, a lengthy hospital stay and several weeks of recovery, as well as a high risk of infection and other complications.

All that could change with Virtual Incision, a medical device company co-founded by University of Nebraska–Lincoln engineering professor Shane Farritor. He was named a Fellow of the National Academy of Inventors in 2016 and is working to transform abdominal surgeries with a miniaturized, first-of-its-kind surgical robot, MIRA.

MIRA, which stands for "miniaturized in vivo robotic assistant," weighs only two pounds and can easily be moved from surgical room to surgical room in a hospital, maximizing surgical space and increasing the number of surgeries that can be performed. It can perform minimally invasive procedures, with a patient recovery time of days rather than months.

The first surgery using the device was performed in August 2021 in Lincoln, Nebraska, as part of a clinical study under the U.S. Food and Drug Administration. The study is being conducted at a limited number of U.S. hospitals in support of the system's regulatory pathway approval.

"The MIRA platform is a true breakthrough platform for general surgery, and it is extremely gratifying to be the first surgeon in the world to use the system," said Michael Jobst, M.D. at Nebraska's Bryan Medical Center. "I'm excited to play a part in taking the first steps toward increasing access to robotically assisted surgery, which has clear benefits for patients."

Other companies have also developed surgical robots, but their devices are large and expensive—some costing up to two million dollars. They are used from the outside of the body and come with limitations. MIRA is a new class of device, as it is inserted into the body. Its small size makes it more accessible and cost-effective for hospitals, which would allow more patients to benefit.

"Demand for robotically-assisted surgery is increasing; it leads to improved patient outcomes and lower costs," Farritor said. "We're excited to start our clinical study and bring the platform one step closer to helping patients who are facing abdominal surgery."