UChicago Medicine Has a Promising New Organ Transplant Storage System

Paragonix LUNGguard is temperature-controlled and keeps organs cold for more than 40 hours without ice.

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In 2021, over 41,000 organ transplant surgeries were performed in the United States, a 6% increase from the previous year. University of Chicago Medicine (UChicago Medicine) performed a record 346 organ transplants—a 42% increase from 2020.

These staggering numbers led to UChicago Medicine's most recent purchase of Paragonix LUNGguard, a sterile, temperature-controlled cooler that keeps organs cold for more than 40 hours without requiring ice. What's more, organ procurement staff can monitor the exact storage temperature and location via an app.

UChicago Medicine's transplant team will begin using other state-of-the-art organ storage and transportation devices for hearts and livers by the end of the year.

"We're leading the way," said Jamie Bucio, the lead organ procurement coordinator for UChicago Medicine's heart and lung transplant programs, in a UChicago Medicine news release. "We're constantly looking to add more and more options for our patients in all organ groups."

Cold storage using ice has for decades been the most common form of organ transplant storage, but for several reasons, it yields imperfect results. If ice is unevenly distributed around the organ, some areas become colder, sometimes causing freezer burn, which leads to complications during rewarming and reperfusion, or the restoration of blood flow to the organ. Ice also makes it difficult to monitor the organ's temperature because once melted, ice must be drained and replaced quickly.

The Paragonix LUNGguard uses a new cooling technology that keeps the temperature inside the cooler at an ideal 39 to 46 degrees Fahrenheit. This is essential because many organs for transplant must travel significant distances. For example, at UChicago Medicine, only about 10% of organs come from within the state of Illinois.

"It puts your mind at great ease," Bucio said. "If a transplant case is taking a little longer than normal or if we anticipate a complicated recipient surgery upfront that will require more time, the

surgeon doesn’t have to be concerned about an organ sitting in a box on ice. These devices allow us to track temperature from the minute it goes into the cooler to the minute it comes out.”

As the demand for transplants increases, these tools will be essential in ensuring successful transplants across the country. “The ultimate goal is expanding how many organs are available for transplant and transplanting more patients,” Rolf Barth, MD, director of liver, kidney and pancreas transplantation at UChicago Medicine, said in the news release.
