Kidneys on demand • Low-cost EMT training for women • Executive transplants at surgeons group

Making new organs in the lab could eliminate long waits for transplants.

STEPHANIE GOLDBERG

Dr. Jason Wertheim and his team at Northwestern Medicine aim to create functional human kidneys in their lab.

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About 3,400 people in Illinois are waiting for a kidney transplant. Many can expect to wait five years before a match becomes available. But local researchers who are developing technology to restore, or even
build, human kidneys in labs say the wait could be shorter in the future.

A team at Northwestern Medicine is developing techniques that could one day create functional kidneys in their Streeterville lab, says Dr. Jason Wertheim, a transplant surgeon at Northwestern Memorial Hospital and vice chair for research in the department of surgery at Northwestern University's Feinberg School of Medicine. Funded partly by a $1.5 million grant from the National Institutes of Health, the researchers use chemicals to strip animals’ cells from their organs, leaving behind only scaffolds—“the structural building blocks of organs,” Wertheim said. It’s expensive work, which is why the team is currently using tiny rat kidneys that require fewer of the costly nutrients needed for cells to grow.

Though the concept itself has been around for decades, researchers now have the tools needed to grow blood vessels within scaffolds.

“We want to get to a point where we can develop a kidney scaffold that we can implant into a recipient animal that could have blood flowing through it and be able to deliver those critical nutrients to growing cells that would later develop into kidney tissue,” Wertheim said.

In addition to the grant from the National Institutes of Health, other sources of funding have enabled technological advancements and, perhaps more importantly, fueled collaboration with various specialists—including engineers, biologists and doctors—from other institutions.

Wertheim’s Northwestern team works closely with the University of Chicago’s Institute for Molecular Engineering to advance kidney regenerative medicine. The two universities have a shared grant through
the Chicago Biomedical Consortium, which aims to facilitate collaboration among scientists.

Bringing different skill sets together allows the groups to “accomplish something that would be difficult for individual labs to accomplish,” said Jeffrey Hubbell, Eugene Bell professor in tissue engineering at the U of C. “We’re all interested in solving a medical problem—a global need—and we saw an opportunity to have an impact.”

Wertheim said the researchers share data and work together to develop metrics and standards to better measure their progress.

“Science tends to be unpredictable,” he added. “There's still a ways to go and we can't really tell how far we are” from developing a functional kidney. “But if we can develop those benchmarks, that actually may give us a guide.”

Nearly 800 kidney transplants were performed in Illinois last year using organs from living and deceased donors. That number would soar if doctors had the ability to restore a patient’s failing kidney or build a match using a scaffold. Today, patients who can’t find a match must endure grueling treatments like hemodialysis, which is typically done three times a week for about 4 hours at a time. Meanwhile, Medicare spending for both chronic kidney disease and end-stage renal disease was more than $114 billion in 2016, according to the latest U.S. Renal Data System report.

“Being able to tell a patient, ‘Hey, we have an organ for you for transplant,’ ” Wertheim said, “it essentially gives patients a new lease on life, and it can remove them from needing dialysis.”

*The amount of the NIH grant has been corrected in this updated story.*

**NEW PARTNERSHIP TO TRAIN FEMALE EMTS**

Medical Express Ambulance Service (MedEx) and the Industrial Council of Nearwest Chicago (ICNC) are collaborating on emergency medical technician (EMT) training for women.
The partners aim to enhance an ICNC training program targeting women who contribute at least 50 percent toward their household income. MedEx, which operates its own EMT training program, will help ICNC with recruitment, training and job placement.

“Just as an industry, we’re always trying to make it better, so we believe that this is our way to give back and hopefully improve EMS (emergency medical services),” MedEx founder and CEO Lauren Rubinson says.

Historically, EMS has been a male-dominated field, like police and fire, says MedEx director of operations Michael Pieroni. Since MedEx was launched 20 years ago by a female entrepreneur, he believes partnering with ICNC to train female EMTs is a “natural fit.”

Sixty-five women are registered for the ICNC classes beginning in early March. Participants pay $350, about 10% of the cost of training, with the rest covered by philanthropic groups. Applicants who don’t fit ICNC’s criteria—including men—will be rolled over into MedEx’s program. More than 100 people are expected to participate in each session between the two programs.

MedEx promoted the new program with a pink ambulance at the Chicago Auto Show.

“We thought that this would be just a great symbol of moving forward and trying to introduce more women into EMS,” Pieroni says.

—Brianna Kelly

WHO’S NEWS

The Chicago-based Society of Thoracic Surgeons (STS) has a new president and a new executive director.

Dr. Robert S.D. Higgins, a heart and lung transplant surgeon, was elected president of STS during the organization’s 55th annual meeting in San Diego, California.
Higgins has held many roles at STS since 1997, serving most recently as first vice president. He also has served as president of both the United Network for Organ Sharing and the Society of Black Academic Surgeons.

Higgins received a bachelor’s degree from Dartmouth College, a medical degree from the Yale School of Medicine and a master’s degree in health services administration from Virginia Commonwealth University.

Elaine Weiss will take over as executive director in April. She’ll replace Robert A. Wynbrandt, who’s retiring after more than 30 years with STS, including 17 years as executive director and general counsel and 15 years as outside legal counsel before STS became a self-managed organization in 2002.

Currently, Weiss is the executive director and CEO of the American Academy of Dermatology. She previously served as the CEO of the Illinois CPA Society and as an associate executive director of the American Bar Association. During the 1990s, she was Midwest regional director for the U.S. Department of Health & Human Services.

Weiss received a bachelor of science degree from Northwestern University’s Medill School of Journalism and a juris doctorate from the National Law Center at George Washington University.

—Brianna Kelly

AT A GLANCE

BOLSTERING PROVIDER DIRECTORIES WITH BLOCKCHAIN: Health care companies, including Optum and Humana, are testing the potential of blockchain to improve the accuracy of health care provider directories. They’ve have learned the distributed ledger technology works best when multiple partners are involved, Modern Healthcare reported.

ADVANCING INTEROPERABILITY & PATIENT ACCESS TO HEALTH DATA: The Centers for Medicare and Medicaid Services (CMS) is
proposing policy changes to make patient data more useful and transferable through open, secure, standardized and machine-readable formats while reducing burdens on health care providers, according to the federal agency.

**HIGHER PAY FOR BETTER PHYSICIANS:** A study by JAMA Network Open determined increasing pay-for-performance bonus sizes might make physicians better, according to the medical journal.

**SUPPORTING CANCER PATIENTS CLOSE TO HOME:** The University of Illinois Cancer Center and Wellness House are providing free supportive therapy and survivorship programs to cancer patients and their families on Chicago's South and West Sides. The partnership offers exercise and nutrition classes, stress management sessions, support groups and counseling, UI Health announced.

**PARTNERSHIP TO IMPROVE TWO INJECTABLES:** Deer Park-based Eton Pharmaceuticals and Swiss-based pharmaceutical company Sintetica SA have entered into a licensing agreement for two innovative ready-to-use formulas of existing injectable products that Eton believes to be two of the highest-volume compounded products in the hospital setting, according to a statement.

**NEW TREATMENT FOR MULTIPLE MYELOMA:** AbbVie and TeneoBio are working together on a new treatment for multiple myeloma that directs the body's own immune system to target and kill b-cell maturation antigen (BCMA) expressing tumor cells, the companies announced.

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