



A liver transplant surgery is performed by Drs. Parsia Vagefi (left) and Steven Hanish. The surgeons are part of a team launching a new living-donor liver transplant program.

## **New living-donor liver transplant program to address severe shortage**

More than 1,700 patients in the U.S. die each year waiting for a liver transplant.

UT Southwestern's new living-donor liver transplant program hopes to lower that heartbreaking statistic by offering patients a route to expedited transplantation and improved survival.

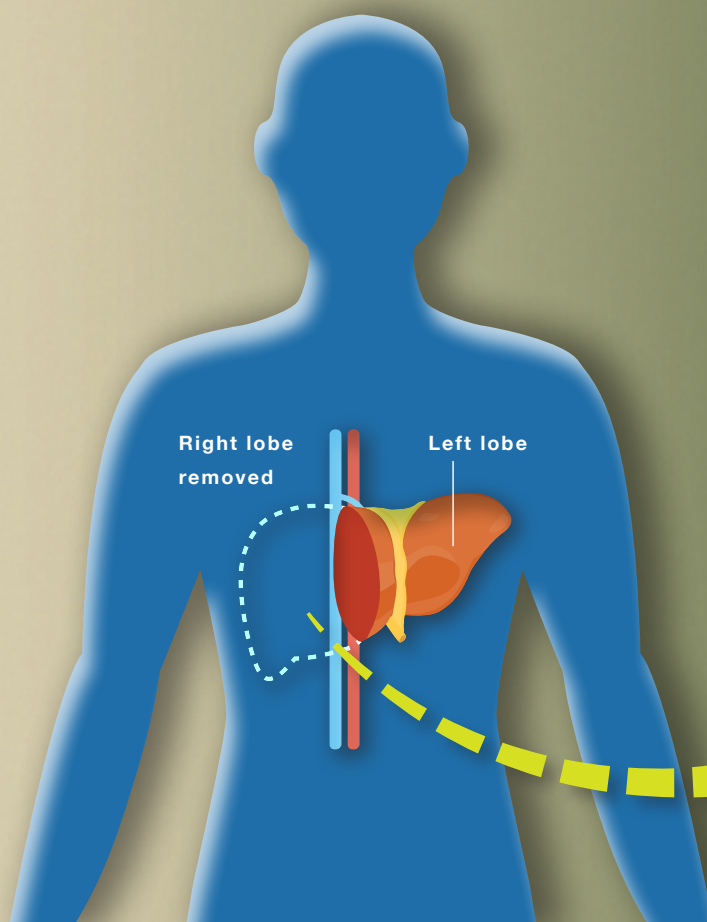
"Living-donor transplantation helps address the critical need for more livers to transplant and is just what it sounds like – a living person can give part of his or her liver to another," said Dr. Steven Hanish, Surgical Director of UTSW's Living-Donor Liver Transplantation Program.

"The liver regenerates," Dr. Hanish explained. "Surgeons can remove a portion of a liver from a healthy donor – up to 70 percent – and transplant it into another person, and it will grow. The portion left behind in the donor will also regrow. That process happens in the first few weeks after surgery."

Living-donor liver transplantation has better outcomes than deceased-liver transplantation, partly because recipients are not on the waitlist for prolonged periods while their health declines, hoping for an available liver, said Dr. Hanish, also Associate Professor of Surgery.

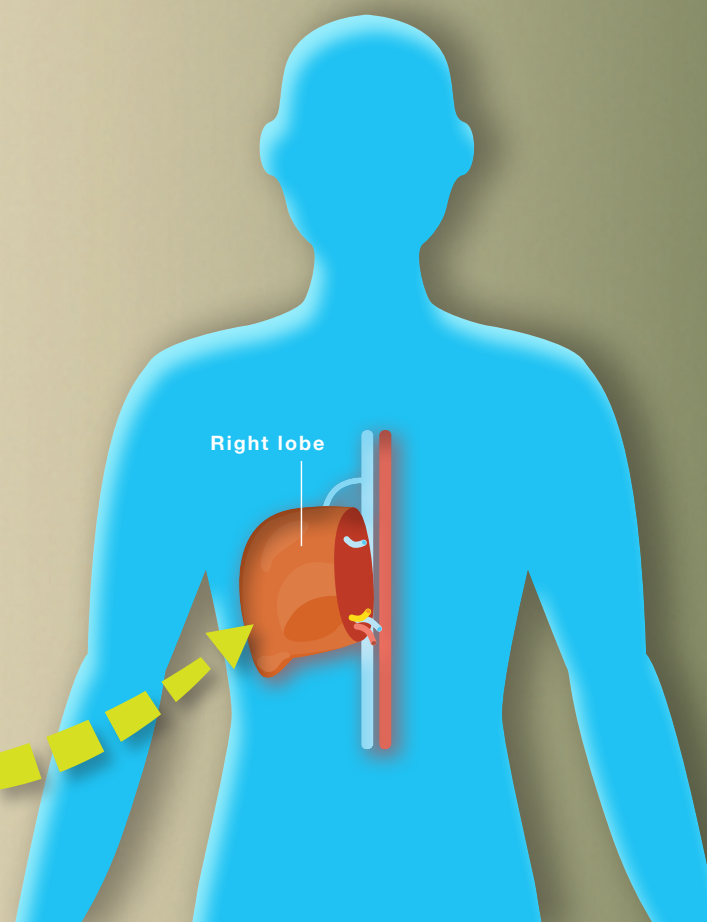
**OPERATING ROOM 1**

**DONOR**



**OPERATING ROOM 2**

**RECIPIENT**



**How living-donor liver transplants work**

**1**

**PREPARATION**

On transplant day, donor and recipient are in adjacent operating rooms, with a surgical team assigned for each.

**2**

**SEPARATION**

The donor's surgery occurs first, with up to 70 percent of the liver, usually the right lobe, removed.

**3**

**ATTACHMENT**

The recipient's damaged liver is removed. The donated liver lobe is immediately attached, joining blood vessels and bile ducts.

**4**

**REGENERATION**

The liver is the only internal organ that can completely regenerate. Within about two months, the portions of liver within both donor and recipient have grown to a normal size.

Not every liver transplant program has a living-donor component, Dr. Hanish noted. Living-donor liver transplant surgery is complex and requires advanced expertise – the kind found at UT Southwestern, he said. The procedure takes between six and eight hours and involves carefully separating the liver so that both pieces can remain functioning in the recipient and the donor.

Only 524 living-donor liver transplants were performed nationally in 2019, according to the United Network for Organ Sharing (UNOS), the nonprofit organization that manages the U.S. organ transplant system under contract with the federal government. UT Southwestern launched its living-donor liver transplant program in 2018.

Donors do not have to be related to the recipient. Historically, though, recipients' children, parents, and siblings – in that order – have been the most common donors, according to UNOS.

Once a transplant patient identifies a potential donor, the donor contacts UT Southwestern to arrange for a full medical and psychological evaluation, a process that takes place independent of the patient (recipient) evaluation.

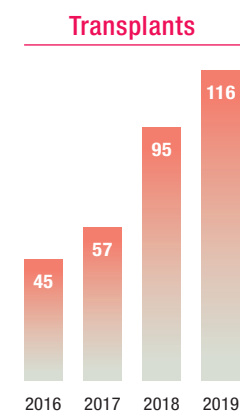
If all evaluations are favorable, surgery is then scheduled with the living-donor transplant team.

“Any patient who is on the liver transplant waiting list is potentially eligible to receive a liver from a live donor,” noted Dr. Arjmand Mufti, Medical Director of Living-Donor Liver Transplantation and Assistant Professor of Internal Medicine.

Donors with a compatible blood type for the recipient must also be in good physical and mental health, have a BMI under 35, and range in age from 18 to 60.

The availability of living-donor liver transplantation is the latest mark of distinction for UT Southwestern's Liver Transplant Program, which saw a 103 percent increase in transplants between 2017 and 2019. Additionally, the program cut the length of stay after transplant from eight days to only five – one of the lowest in the country, said Dr. Parsia Vagefi, Associate Professor of Surgery, Chief of the Division of Surgical Transplantation, and holder of the Ernest Poulos, M.D. Distinguished Chair in Surgery.

“A leading-edge program in living-donor liver transplantation surgery is entirely consistent with our distinguished record in liver care and our status as one of the nation's leading academic medical centers,” Dr. Vagefi said. “We're certainly proud of our past, but even more excited for our future.”



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## Use of new technology improves odds of liver transplant success

Since the first liver transplant in 1963, donated livers have been immersed in icy fluid inside a cold storage system for transport. Only after the organ is transplanted does the surgeon learn if it functions correctly.

UT Southwestern transplant surgeon Dr. Malcolm MacConmara is leading an international trial to test a better way. The study at 20 U.S. sites is examining the effectiveness of a new device, the portable Organ Care

The OCS is about the size of a small shopping cart. Inside, major blood vessels of the donated liver connect to tubes that infuse it with blood. The liver inside the device makes bile and processes medications.

Dr. Parsia Vagefi, Associate Professor of Surgery, Chief of the Division of Surgical Transplantation, and holder of the Ernest Poulos, M.D. Distinguished Chair in Surgery, explained why this might work better than the current system: “The longer a liver sits on ice, the more likely it is to have problems after transplant. It will become unusable if stored too long. With patients waiting for organs, this new way may expand the number of donated livers for transplant.”

One recent beneficiary was Greg Nielsen, a Dallas construction worker. At 59, his liver was failing due to cirrhosis and cancer. When he reached UT Southwestern in June 2018, his options were running out.

After a liver became available, Dr. MacConmara and his team traveled to the donor hospital, carefully placed the liver in the OCS, and returned to UT Southwestern. They monitored it as it produced bile and saw it was functioning well. Dr. Vagefi led the surgical

team that transplanted it.

Mr. Nielsen went home three days later. “Before the surgery, I couldn’t walk much at all,” he said. “Now I walk 45 minutes every morning. It’s like a miracle.”

System (OCS) from TransMedics, which keeps donated livers warm and circulates blood during organ transport.

“It’s like a virtual transplant,” said Dr. MacConmara, Assistant Professor of Surgery. “By putting the liver on the machine, we can truly approximate the conditions of the body.”

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Dr. Malcolm MacConmara (right) shows patient Greg Nielsen the device that was used to transport a donated liver for his transplant. The machine keeps livers warm and circulates blood during transport, ensuring the viability of organs. Dr. Parsia Vagefi, left, led the surgical team that transplanted Mr. Nielsen’s new liver.