

Tayfun Sönmez and Utku Ünver (Lee Pellegrini)

# BC economists integral to one of the world's leading liver exchange initiatives

Ed Hayward | University Communications | September 2024

With the support of an exchange program developed by Boston College economists Tayfun Sönmez and Utku Ünver, the Banu Bedestenci Sönmez Liver Paired Exchange System has rapidly become one of the world's leading liver exchange initiatives.

Located at Turkey's Inonu University, the program has set new standards by performing the world's first five-way liver exchange in October 2023, the first six-way liver exchange last January, and the first seven-way liver exchange in July, said Sönmez. These groundbreaking procedures have been documented in a forthcoming paper in the *American Journal of Transplantation*, the premier scholarly outlet for the field.

Sönmez and Ünver, both natives of Turkey, are recognized world-leading experts and developers of matching mechanisms, particularly in the area of kidney exchange and transplantation. Their work in "matching markets" has also focused on how to improve K-12 school choice algorithms and the assignment of cadets to military specialties in the United States Army.

In recognition of their contributions, Inonu University honored Ünver and Sönmez with honorary doctorates on July 26, during the ninth Malatya Giessen Transplantation Days conference. The event also served as the platform to announce the world-first seven-way liver exchange, with participation from Turkish media and officials, including the health minister.

The researchers thanked Liver Transplantation Institute Director Sezai Yilmaz, M.D., the program's surgeons and professors, and medical and administrative personnel, as well as Inonu University President Ahmet Kizilay.

"I am humbled and deeply honored with this honorary doctorate," said Ünver. "However, it is more humbling to know that more than a hundred patients have already benefitted from the University's

liver paired exchange program, receiving transplants that would not have materialized otherwise."

"Even before receiving the honorary doctorates from Inonu University, our partnership had been truly fulfilling," said Sönmez. "While Utku and I need no additional motivation or recognition to give our best for this program, we are, of course, very happy and humbled to receive this honorary degree."

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> **Tayfun Sönmez**

The Banu Bedestenci  Sönmez Liver Paired Exchange System has performed 144 liver exchange transplants to date, with 129 of these occurring in the 13 months since the program's public announcement in July 2023. This achievement far surpasses the previous record of 10 liver exchange transplants in a single year and the 94 transplants, during a period of 13 years, performed by the next highest-volume program, the researchers said.

"No other program ever performed more than 10 liver exchange transplants in any given year," said Sönmez. "No other program ever reached 100 liver transplants, a number we reached in less than a year. Right now, we are performing somewhere between 70 to 80 percent of the world's annual liver exchange transplants in just one center in Turkey."

The program's ability to conduct multi-way exchanges—including one seven-way, two six-way, three five-way, seven four-way, and 14 three-way exchanges—has revolutionized liver transplantation. These complex procedures overcome the challenges of matching donors and recipients, providing life-saving transplants to patients who would otherwise not receive them. Among other factors, the program developed by Sönmez and Ünver helps to maintain transplant opportunities for multiple patients by ensuring blood-type compatibility and compatibility in the

size of the liver grafts.

“Multi-way exchanges overcome the difficulty in matching by serving more patients, many of whom otherwise would not receive transplants, and providing others with better transplants than they would otherwise get in smaller exchanges or directly from their own compatible donors,” said Ünver.

The Institute team can conduct up to seven-way exchanges, simultaneously utilizing 14 surgery rooms and about 140 medical personnel, said Ünver. This capacity is instrumental in overseeing all larger than three-way exchanges and 14 of the 16 three-way exchanges conducted in the world. Similar capabilities do not exist in any other single center, Ünver added.

Sönmez highlighted the personal significance of the program, created in memory of his late wife, Banu, and its success in increasing living donor transplants by more than 30 percent in the past two years.

“Creating the Banu Bedestenci Sönmez Liver Paired Exchange System at Inonu University in her memory has been profoundly meaningful for me and our son, Alp Derin,” said Sönmez. “The program's success, becoming the most effective living-donor organ exchange initiative globally and increasing living donor transplants by over 30 percent in the past two years, has deepened our sense of joy and connection to this cause. This journey has been a tribute to Banu's legacy, reminding us of her incredible strength and love every day.”