

## Cross-donor system planned for region's kidney patients

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New England transplant surgeons, working with a Harvard economist, are planning a unique organ-trading system that could ease the shortage of kidneys available for transplant by giving willing donors a strong new incentive to give their kidneys to strangers.

Currently, hundreds or even thousands of potential organ recipients must join a long transplant waiting list even though friends or family members are willing to donate a kidney, because the would-be donors prove to be a poor match with the patient. The new system would take these willing donors and connect them with similarly mismatched donors elsewhere in New England, allowing them to cross-donate kidneys to each other's friends or loved ones.

Since 2001, New England doctors have performed six of these paired exchanges, including one last year when two women each successfully donated a kidney to the other's husband at Massachusetts General Hospital. But the idea's effectiveness is limited by the difficulty of finding well-matched patients and donors.

To overcome this, Harvard economist Alvin Roth developed a new computerized donor tracking system that could allow doctors to arrange scores of exchanges per year in New England alone, over time significantly reducing a regional kidney waiting list that now stands at 2,237. In a limited test of his system, Roth found eight matches from 45 potential donors who had previously been rejected. Applied nationally, Roth believes the system could potentially save thousands of lives.

"This could be quite a substantial increase in the number of live donors," said Dr. Francis L. Delmonico, medical director of the New England Organ Bank in Boston, which manages the region's organ supply.

The paired-exchange system appears to be surmounting the ethical concerns that have sunk other ideas for fostering more organ donation. Congress long ago barred financial incentives to encourage donors, but medical ethicists are also concerned about any system that pressures people to undergo a risky operation that does not benefit their own health. Though most organ donors recover fully, an estimated one in 3,000 die and all of them lose their backup kidney in the event they develop kidney disease themselves.

Writing in *The New England Journal of Medicine* recently, Delmonico argued that organ exchanges can be "models of altruism" as long as everyone knows the risks and no money is involved. A transplant surgeon at Mass. General, he has proposed Roth's matching system to the panel of surgeons that sets kidney transplant policy in New England.

"I don't think that there are any ethical issues" to expanding the number of trades, said Dr. Paul Morrissey of Rhode Island Hospital, chairman of the Renal Transplant Oversight Committee. "It's just setting up the mechanism to carry it out."

Even tough critics such as Dr. Lainie Friedman Ross, medical ethicist at the University of Chicago, agree that the paired-exchange system can be fair. Ross has faulted other approaches for discriminating against one group of patients in favor of another, but she said she's "totally in favor" of Roth's system.

The paired-exchange system comes 50 years after Dr. Joseph Murray carried out the nation's first kidney transplant at what is now Brigham and Women's Hospital, using a kidney taken from the patient's identical twin to avoid organ rejection. Today, in part to antirejection drugs, surgeons can often transplant kidneys between perfect strangers even if the donor's tissue is a poor match.

As a result, almost a quarter of live donors are not related to the patient who gets their kidney.

Roth estimates that nearly half of willing donors do not donate because their blood type doesn't match the patient or the patient's immune system would attack the donated organ, and because there is currently no system for keeping track of rejected donors.

Roth's system would change that by entering potential donors' names into a computer database and searching for a match. Long interested in improving the transplant system, Roth has written a detailed paper with two other economists outlining how the system will work.

With the kidney transplant waiting list now up to 61,000 across the country, transplant surgeons and patient groups will be watching the New England experiment closely. Morrissey said the system is sure to save lives, but "whether it adds 15 transplants a year or 150 remains to be seen."

In recent years, surgeons have become increasingly desperate for transplant organs, with some even suggesting that people get paid to fill out an organ donor card.

So far, the handful of paired exchanges completed in New England have created happy endings for people who were increasingly hopeless.

For instance, Susanna Polletta of Watertown, Conn., had wanted to donate a kidney to her husband, Rosario, whose kidneys were gradually failing as a result of a long battle with lupus.

But both her blood and tissue types were a complete mismatch for him, so Rosario remained on a transplant waiting list for years, relying on home dialysis to keep his body going.

By chance, Rosario's doctor at Mass. General, Nina Rubin, was treating another man who had the same problem: Tracy Scott of Chichester, N.H., was languishing on the transplant waiting list even though his wife, Robin, was ready and willing to donate a kidney. Then Rubin discovered that Robin's kidney was a match for Rosario while Susanna's matched Tracy's. "It was like a miracle," said Rosario Polletta.

On Feb. 25, 2003, the women donated their kidneys to the two men, and, 15 months later, all four have resumed their normal lives.

"I probably have more energy now than I did when I was 30," said Polletta, now 47.

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