

Living Donation in Paired Exchange: How is it different from traditional donation?

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What is kidney paired exchange (KPE)?

Kidney Paired Exchange programs have provided hundreds of recipients the opportunity to receive kidney transplants that in previous years would never have occurred due to ABO incompatibility or positive cross-matches. A high number of transplant programs have participated in national, regional and local exchange programs in an effort to increase transplant options. Typically, the live donor has the surgery at their original, intended transplant center, and the kidney is shipped to complete the paired exchange. Very few US transplant programs ask donors to travel to the recipient's transplant center.

How does it work?

There are several national kidney paired exchange programs in the US, including The National Kidney Registry (NKR), Alliance for Paired Donation (APD) and one run by UNOS. Donor/recipient pairs are entered into the KPE system, a match offer is eventually made, and then transplants are planned. If a potential live donor has initiated evaluation at a transplant center that does not participate in paired exchange then s/he can be referred to a KPE transplant center to facilitate transplantation. Some exchanges can happen fairly quickly but some matches can take several weeks, even many months to come to fruition. Some paired exchanges happen internally within the transplant center. Others involve many transplant centers. In most cases, the donor and his/her original 'intended' recipient have surgeries scheduled close together, but in some cases the dates are far apart.

How is this different than 'direct' live donation, for the donor?

There can be multiple match offers, involving multiple blood draws for the donor and the uncertainty of failed chains. The timing of the transplant can be unpredictable as it depends on the many centers involved and the possibilities of failed crossmatches. A KPE chain may fall apart at the last minute due to health issues of the recipients, resulting in a rollercoaster ride of hope and disappointment. If the donors experience too many of these false starts, they may eventually lose interest in the process. As in any

transplant surgery, there is always the chance that the recipient outcome may not be successful. Graft failure or recipient death, though unlikely, is always a possibility and can lead to depression or self-doubt in the donor. Kidney exchanges can add another layer to the complexity of these emotions for the living donor.

The evaluations of living donors for the exchanges are no different than the evaluation for any kidney donation. However, the live donor in paired exchange is given a KPE informed consent in addition to the usual consents for living donor evaluation and the actual surgery

The donors' complete medical record and demographic information is shared with other transplant programs, though in some exchange programs, names are withheld. In addition, their information may be shared with the actual recipient's insurance company. Although all hospitals are held to the same privacy laws, this is an added risk. Financial risks are the same as a directed donation; however the matched recipient's insurance company can have very different coverage than their paired recipient. The donor may find they are liable for expenses they were not expecting, and it is recommended the donor check with their treating facility about financial protections contained in the paired exchange contracting.

As stated above, most live donors have their surgery at their original, intended transplant center and the kidneys are shipped (1). The shipping of kidneys may theoretically carry additional risks. Although extremely rare, kidneys can become lost during shipment or suffer delays adding significantly to cold ischemia time and impact the ultimate outcome of the transplant.

There are other untoward risk scenarios that can occur within a kidney exchange. If a donor's surgery is aborted due to complications prior to the recovery of the kidney, the matched recipient within the chain will not get transplanted. It is also a possibility that the paired recipient could suffer a surgical event and not be able to be transplanted even though donor nephrectomy has already occurred. In this scenario another recipient will be selected from the UNOS wait list. Depending on the specific paired exchange program used, there may be protections in place to give recipients in these situations priority for future matches.

Kidney exchanges are complex and, in spite of everyone's good intentions, can be difficult to execute. The key in the continued success of kidney exchanges depends on many factors, including improved streamlining of the process. Better record sharing capabilities, improved shipping plans, standardized national financial fees, a thorough informed consent of the donor, would have an impact in improving the exchange process.

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Note: The recommendations in these chapters are the opinions of the Living Donor Community of Practice of AST. They are not meant to be prescriptive and opinions by other groups or institutions may be equally valid.