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### **Family vouchers—Unique innovation in need of continuous quality assurance**

Cooper et al<sup>1</sup> use a Monte-Carlo simulation model to assess the solvency of the National Kidney Registry (NKR) Family Voucher program. The program allows kidney donors to identify up to five individuals to receive a voucher for a future kidney transplant facilitated by the NKR. This program was originally created to serve the needs of a kidney donor and has expanded to improve access to kidney transplantation for many patients. The authors assess this important program using valid scientific methods based on conservative assumptions. The conclusions are reasonable but merit some additional context.

These data must not be considered as a simple “validation” of the NKR Family Voucher Program. Trying to model a 50-year time horizon is problematic. The authors make the good analogy using the tools of banks to ensure that they can pay out their debts based on current deposits. It is important to note that banks update these models near-continuously and are heavily regulated to assure their solvency. The complexity is further increased in that kidneys are a much more complex entity than the dollar. Many readers will be familiar with the modeling that has recently been done to predict case rates of coronavirus. As we have all observed, these models change on a weekly basis, and models from a month earlier seem naïve and misguided. Models with a 50-year time horizon are generally only used to assess slower-moving systems such as geologic change, and are inherently flawed when used with the rapidly changing system such as ESRD care. Recall that 50 years ago the current standards of care for ESRD, transplant, hemodialysis, and peritoneal dialysis were in their infancy.

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This analysis is most appropriately viewed as a good faith effort by the NKR to use solid scientific methods to assess its ability to fulfill its commitments. This modeling is the first step in this process and lays the foundation for ongoing continuous quality assurance of the program. This model should be updated with the newest, best evidence and the program titrated to assure that a voucher holder will be able to expeditiously receive a kidney transplant upon request. Considering the culture of transparency within the U.S transplant community, this model should be made publicly available and subject to peer review, including frank discussions about model inputs.

The authors are unable to model how sensitized recipients affect their models. Considering current technology this is reasonable, as most family voucher holders are healthy and their need for a kidney transplant may be decades away. As new technology and modeling techniques become available, efforts should be made to update this model to include consideration of the sensitized voucher holder. A significant mismatch in the blood types of voucher holders compared to the pool of potential donors will jeopardize the ability to fulfill the voucher. The NKR must carefully monitor the portfolio of blood type for all voucher owners and sensitization for standard voucher owners and titrate the program appropriately. Once again, the model detailed in this manuscript must be considered a tool for quality assurance and be used to maintain the balance required for a successful voucher program.

The NKR may go out of business. To date, they have served the public well aided by strong partnerships with institutions, such as large universities, that likely add stability to their business model. However, the current pandemic again reminds us of how quickly radical change can occur. It is unclear how vouchers will be redeemed if the NKR goes away. All NKR centers agree to work under the direction of the surgical director of the NKR to fulfill their commitments. This is a reasonable plan and to date, all stakeholders have demonstrated a deep commitment to donors, recipients, and their families. A better plan would be an agreement with the OPTN to back up this exchange program with access to a deceased donor.

At its core, the work of the NKR and its family voucher program represents an excellent innovation in the field of transplantation. This report represents a good faith effort to engage in peer review of a complex program that requires input from the entire transplant community. As long as

the NKR remains committed to quality assurance and transparency, we remain hopeful they will continue to effectively serve donors, recipients, and families.

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#### **Disclosure**

The authors of this manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

#### **References**

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