



New Organ, New Problems

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As I perused the current edition of *Pediatrics in Review*, acknowledging the ongoing American Heart Month, the review on immunosuppressive therapies for solid organ transplant recipients penned by Drs Spinner and Denfield stood out ([10.1542/pir.2020-000620](https://doi.org/10.1542/pir.2020-000620)). Beyond my natural bias towards anything related to pediatric cardiology, I was struck by a couple of observations, both flanking the monumental event of transplant.

The first one pertains to the phase of care of helping a patient reach that milestone – and not just reach, but stride confidently across the ‘finish-line’ ribbon. It may be hard to always remember, but for a family going down the road of a solid organ transplant, it is a roll of the dice. There is no shelf to pick organs off of (at least not yet), and there is no way of knowing how long the wait may be. Based on the latest data from the United Network of Organ Sharing (UNOS) and the Organ Procurement and Transplantation Network (OPTN), only about two-thirds of children listed for heart transplantation successfully undergo the same by 1 year after listing.^{1,2} In fact, among the sickest cohort of patients (those listed Status 1A), the median wait time is 71 days, while the next priority group (Status 1B) has a median wait time of 246 days (i.e. over 8 months).² Recently, on January 7, the medical world was energized by the news of the heart of a genetically-modified pig being transplanted into an adult human with end-stage heart failure.³ It has been a month since the surgery, and an internet search reveals that the recipient is still alive and progressing to physical therapy.⁴ This news was exciting for many reasons, one being the known shortage of organs for transplant, especially heart transplants. Additionally, as the number of children surviving heart surgery in infancy and early childhood increases, the number of patients who live longer to develop heart failure and eventually need heart transplants is also increasing.⁵ While the pool of organ donors remains constant, the demand for these organs is increasing, widening the demand-supply gap. So, as you mark this Heart Month, I urge you to consider becoming an advocate for organ donation in your community.

Secondly, this article effectively highlights the fact that the occurrence of the organ transplant, in fact, is not a “finish-line” at all. If anything, it is the start of a new race or a countdown. The various therapies discussed in this paper remind the reader that a patient receiving a transplant, indeed remains a patient – and the list of things that they need to stay mindful of is still long. The life-saving immunosuppression necessary to preserve the organ’s health can involve significant morbidity, ranging from medication adverse effects, changes in bioavailability during normal childhood events like gastroenteritis, to drug interactions with common childhood medications like azithromycin. Hence, it is vitally important for the pediatricians seeing these patients in clinic to be watchful for these. Remember, the friendly pediatric transplant cardiologist is only a phone call away!

But beyond the wealth of information, I believe these also represent a unique opportunity for collaboration between the pediatrician and the cardiologist, as these ‘collateral’ effects can be very multi-system in nature. For instance, hypertension is a very common side effect of the ‘bread-and-butter’ immunosuppression such as steroids and tacrolimus. Reliable blood pressure checks at the pediatric visits are key to optimizing hypertension management for these patients, hence prolonging the life of the new organ in a transplant recipient. Being sensitive to the kidneys is another vital point – so avoiding non-steroidal anti-inflammatory drugs and observing caution with renally cleared medications would be another avenue for communication and collaboration. Diabetes and obesity are common side-effects of immunosuppressive agents, and both are important to address in a timely fashion in children with solid organ transplants. For instance, we know that dyslipidemia and obesity decrease graft survival and reduce survival after pediatric heart transplant.⁶ A jointly promoted strategy of interventions for these including lifestyle, diet, and medications, advocated in the same vein by the cardiologist as well as the pediatrician may improve adherence to these. As these patients proceed through adolescence, medication compliance may emerge as a concern, as children start to take on more responsibility for their medications and perhaps also seek normalcy. A partnership with the pediatrician to continue to emphasize medication adherence and alert the cardiologist if any concerns arise would be a phenomenal resource and tool. And of course, let’s not forget vaccines. While these patients may not be able to have live vaccines, a partnership between the pediatrician and the cardiologist to promote the vaccines the child is eligible for could be invaluable as we try to avoid preventable diseases in this vulnerable cohort. Finally, and perhaps most critically, another set of eyes on socioeconomic determinants of health to advocate for specific resources or support could be a wonderful tool in our armamentarium to help these children on the second leg of their transplant journey. A pediatrician’s office that consolidates health-seeking behaviors in these patients as they grow older could help ease the transition of care and perhaps reduce lapses in care delivery, especially among the vulnerable.

While the paper focused on medications after solid organ transplant, I think it reflected a broader meaning. As we try to maximize opportunities and outcomes for our most critically ill patients, awareness and action in the communities and in the primary care clinics is an incredible avenue for collaboration and the basis of partnership across silos of specialization to provide truly patient-and family-centered care.

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