

Making kidneys count

Renal transplantation improves both the length and quality of life of patients with end-stage renal disease—the survival benefit of undergoing kidney transplantation over remaining on maintenance dialysis has been demonstrated in many different contexts. However, the demand for kidneys far outstrips the supply, and new strategies are needed to increase the number of kidneys available and to optimize the outcomes of organs that are transplanted. This Focus issue highlights some of the latest progress, issues, and challenges that remain in the field of renal transplantation.

Given the scarcity of donor organs relative to population need, increasing the pool of both deceased and living donor kidneys is critical to improving the prognoses of renal transplant candidates. Interventions that may increase the pool of deceased donors include the establishment of policies for presumed donor consent, increasing donor registration, financial incentives for donors, changes to organ allocation policies and distribution of organs, and the selective use of donors with potential or known risk for disease transmission. In their Review, Jesse Schold and Dorry Segev describe these strategies and discuss the contentious elements that may have delayed or impeded their implementation. Kidneys retrieved from living donors provide the greatest potential for increasing the donor pool, and although living donor kidney transplantation tripled in the USA between 1990 and 2004, the growth of living donation has now slowed and new approaches are needed to further increase such donations. In a second Review, Segev discusses clinical innovations that could increase the number of living organ donors including new surgical techniques that minimize the barriers to donation, kidney paired

donation programs for individuals who have willing but incompatible donors, and the desensitization of patients.

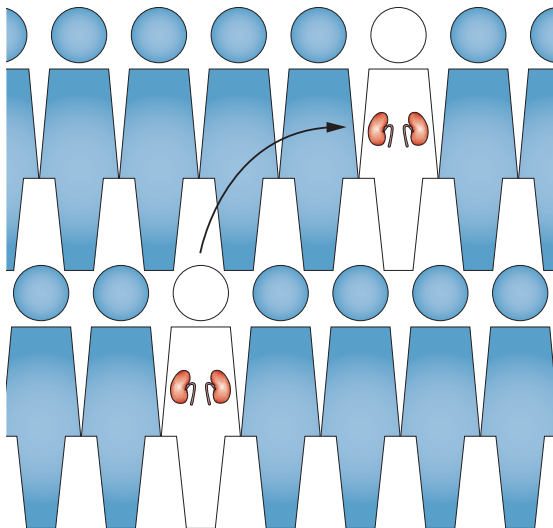
The use of kidneys considered nonoptimal for transplantation, such as kidneys from expanded criteria donors and those donated after cardiac death, requires novel preservation strategies as such kidneys are highly sensitive to ischemia–reperfusion injury. Static cold storage—the current gold standard preservation method—is unable to fully protect them. In their Review, Delphine Bon and colleagues describe emerging strategies that could protect against ischemia–reperfusion injuries and improve graft outcomes.

Despite improvements in outcomes following renal transplantation, kidney allograft loss remains common, and leads to increased morbidity, mortality and costs. Identifying the pathologic pathways responsible for allograft loss, and the resulting development of therapeutic interventions targeting these pathways, is clearly very important. An area that has generated great interest in the field of transplantation is the role that donor-specific anti-HLA antibodies (DSAs)—which can emerge at any time after transplantation—play in mediating allograft injury. In their article, Alexandre Loupy *et al.* describe the role of DSAs in mediating allograft injury, and present evidence indicating that DSAs are largely responsible for the chronic deterioration of allografts (an outcome previously attributed to chronic allograft nephropathy and calcineurin inhibitor toxicity).

A Perspectives article by Gabriel M. Danovitch and Mustafa Al-Mousawi discusses The Declaration of Istanbul on Organ Trafficking and Transplant Tourism. The Declaration includes a set of principles and proposals that recommend the prohibition of transplant commercialism, transplant tourism and organ trafficking, and aim to provide safe and effective practices that meet the needs of transplant recipients and protect the rights of living organ donors. The authors of this Perspectives article provide an update on this endeavor, specifically discussing promulgation of the Declaration, how it has been put into action and legislative changes that have since come into effect.

It is clear that many challenges remain in the field of renal transplantation, and that a massive increase in the number of organs available for transplantation is greatly needed, together with approaches to maximize the utility of suitable kidneys and to ensure the best possible outcomes. This Focus issue aims to highlight some of these issues and encourage further research into innovations that will reduce the organ shortage and optimize patient outcomes, while maintaining the safety of living donors.

“...a massive increase in the number of organs available for transplantation is greatly needed...”



doi:10.1038/nrneph.2012.86

Rebecca Ireland is a Senior Editor of *Nature Reviews Nephrology*.

Competing interests
The author declares no competing interests.