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## The future of children's renal transplantation

**C**ongenital abnormalities of the kidney and urinary tract are the most common cause of paediatric chronic kidney disease and end-stage renal failure (ESRF). The best form of renal replacement therapy for children with ESRF is pre-emptive renal transplantation. There are improved patient mortality and morbidity rates and quality of life for those children who have successfully received a transplant compared to those receiving haemodialysis or peritoneal dialysis. The average renal allograft survival is better for living donors than deceased donors and is now approaching 15 years, so re-transplantation is common. In addition, some children require multi-organ combined or sequential transplants.

It is surprising that over the past ten years, the number of children on the waiting list for deceased donor kidney transplants has doubled, yet the number of children receiving them has almost halved. Working with National Health Service Blood and Transplant (NHSBT), we are addressing these issues to improve the chance of children receiving well-matched kidneys.

Children undergoing transplantation show specific differences to their adult counterparts regarding their underlying diseases, challenging surgical techniques, growth and development, the effects of immunosuppressive therapies, and the impact of infections on the immune system. Of particular concern is the development of EBV-driven post-transplant lymphoproliferative disease as well as chronic kidney disease and allograft dysfunction, both of which can be due to immunosuppression (especially calcineurin inhibitors in the latter).

We have embarked on an active transition programme, linked to four adult renal transplant centres to provide joint adolescent clinics and hopefully reducing renal allograft loss from non-concordance. We have also embarked on blood group (ABO) incompatible renal transplantation and non-heart-beating deceased donor programmes and desensitization protocols as well as putting patients forward for exchange (pooled-paired) transplantation. These plans may bridge the gap over the next 20 years for us to be able to grow kidneys or create replacement organs using acellular organ scaffolds populated with stem cells. **JRN**



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