

# Kidney failure can complicate long-term outcomes in children receiving solid-organ transplants

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Children who undergo transplants of solid organs have a high risk of developing advanced kidney disease, according to a new national study. Among these children, the highest risk is in those receiving lung or intestinal transplants, followed by heart and then liver transplants. The researchers say their findings reinforce the importance of continued screening of kidney function in pediatric transplant recipients.

"We found that the risk patterns for [kidney disease](#) are different among patients who receive solid-organ [transplants](#) as [children](#), compared to adult [transplant recipients](#)," said pediatric nephrologist Rebecca L. Ruebner, M.D., of The Children's Hospital of Philadelphia. "Because chronic and end-stage kidney disease carry high burdens of mortality and serious illness, it is important to take preventive measures to slow or prevent disease progression."

Ruebner is the first author of a study published online today in *Pediatrics*. The senior author is Susan L. Furth, M.D., Ph.D., chief of Nephrology at Children's Hospital.

Using data from the Scientific Registry of Transplant Recipients, the study team analyzed records of 16,600 pediatric patients who received solid-organ transplants (liver, heart, lung, intestine, and heart-lung) from 1990 to 2010 across the U.S. This was the first pediatric study to compare the relative incidence of end-stage kidney disease (ESKD) by type of organ transplant. It was also the first analysis to identify the risk of advanced kidney disease among pediatric solid-organ recipients over a 20-year period.

In this two-decade national cohort, the researchers found that ESKD occurred in 3 percent of pediatric solid-organ recipients, with the highest risk of

ESKD among those who received lung transplants or intestinal transplants. Patients who received liver transplants as children had the lowest rate of ESKD.

In contrast, adult liver transplant recipients are known to have the highest risk of ESKD and adult lung transplant recipients have lower risks of ESKD. For both children and adults, intestinal transplantation carries higher risks of ESKD.

"Although the overall incidence of end-stage kidney disease was only 3 percent, the broader burden of chronic kidney disease is much higher in this population of pediatric transplant recipients," said Ruebner. "Children with [chronic kidney disease](#) experience a steady decline in [kidney function](#), so we recommend that pediatric healthcare providers carefully follow post-transplant patients to detect any early signs of kidney problems, with early referral, if necessary, to a pediatric nephrologist."

**More information:** "End-Stage Kidney Disease after Pediatric Non-Renal Solid Organ Transplantation," *Pediatrics*, published online Oct. 14, 2013, to appear in Nov. 2013 print issue.

Provided by Children's Hospital of Philadelphia

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