



Living-donor liver
transplants **give life** to
hundreds of children

LIVING-DONOR LIVER TRANSPLANTS ARE A VIABLE OPTION FROM A PIONEER IN THE FIELD OF TRANSPLANTATION

Big demand, little supply

The numbers are staggering. Although more than 15,000 Americans (500 are children) are on the waiting list for a liver transplant, only 6,500 deceased-donor livers are available for transplant. That means less than 50 percent of those on the waitlist get a liver. It can be even harder for children, because the liver has to be matched in size as well. Living-liver donation saves lives — and valuable time — by increasing the number of available organs for children in desperate need.

And adult-to-child living-donor liver transplants have helped to diminish wait list mortality.



DEMAND IS 2.5 TIMES GREATER THAN SUPPLY



The liver's unique ability to regenerate

Because the liver regenerates, the living donor (a family member, friend, or stranger) can donate a portion of their liver. The re-growth of the liver cells in the remaining portion of the liver occurs in a short period of time for both donor and recipient.

In the case of a child, a much smaller portion of the liver can be taken from the adult donor. Of course, the living donor transplant team at UPMC Transplant Services will perform an extensive evaluation to ensure that risk is minimized. The majority of donors are back to baseline health within three months after surgery.



Living-donor liver transplants save lives

Living-donor liver transplants offer many lifesaving advantages for both the adult donor and the child recipient. The Hillman Center for Pediatric Transplantation at Children's Hospital is the leading center for pediatric living-donor liver transplantation in the United States for the past six years based on volume, according to data by the United Network for Organ Sharing. In addition, Children's Hospital reports 100 percent three-year patient and graft survival, according to the Scientific Registry of Transplant Recipients June 2016 release.

FOR THE PEDIATRIC RECIPIENT

- **Shorter wait times** — This procedure can help eliminate the long wait on the national transplant list.
- **Elective surgery advantage** — With living donation, the operation can be scheduled electively, when the recipient is in optimal condition, which enhances the probability of success following transplantation.
- **Improved long-term outcomes** — Transplant candidates generally have better results and better genetic matches when they receive organs from living donors as compared to deceased donors.
- **Treatment options for many disorders** — Children's transplant program treats a range of disorders, including acute and end-stage liver disease as well as metabolic disorders, including maple syrup urine disease (MSUD).

FOR THE LIVING DONOR

- **Huge impact on a child's life** — Donors can feel good knowing they're contributing to a child's life in a meaningful way.
- **Removes a candidate from the national wait list** — This increases the number of deceased donor livers available for transplantation.



BENEFITS

The referral and evaluation process made simple

At the Hillman Center for Pediatric Transplantation at Children's Hospital, we make it easy for physicians to refer pediatric patients for transplant evaluation. We're here to assist you through the entire process — from the preliminary clinical review to financial authorization to full evaluation.

To start, a completed demographic and clinical summary is sent to our liver transplant team. The pre-transplant coordinator will collect the child's medical

history, radiology studies, and recent blood work. This information is disseminated for clinical review and insurance authorization. Next, a transplant evaluation is scheduled.

The evaluation, which typically requires three to four days in Pittsburgh, includes diagnostic testing and consultations with a transplant surgeon, hepatologist, social worker, and other specialists. Then the child's case is presented to a multidisciplinary team for consideration.

TRANSPLANT REFERRAL PROCESS



A collaborative approach with you, the referring physician

Our intricate understanding of the field of transplantation has allowed us to gain invaluable insight and experience in working with referring physicians. And we're committed to maintaining open communication at every stage of the transplant process.

For starters, you'll continually be updated about your patient's progress and remain an integral part of the process every step of the way:

- Assisting in the coordination of specialists in pre-transplant evaluation
- Continuing to medically manage the patient's care while he or she awaits transplantation
- Collaborating with the transplant team in the child's long-term and post-transplant care by being provided treatment regimens and any changes to medications and annual evaluations

Need to contact us? Our physicians are available via in-person interactions, by phone, email, or through teleconference sessions.

The Liver Transplant Team at Children's Hospital of Pittsburgh of UPMC and her donor, family friend Mike Thompson, saved Kennedy Stevenson's life.



A living-donor liver transplant patient story

The team of liver transplant experts at the Hillman Center for Pediatric Transplantation at Children's Hospital gave Kennedy Stevenson a treatment option that saved her life.

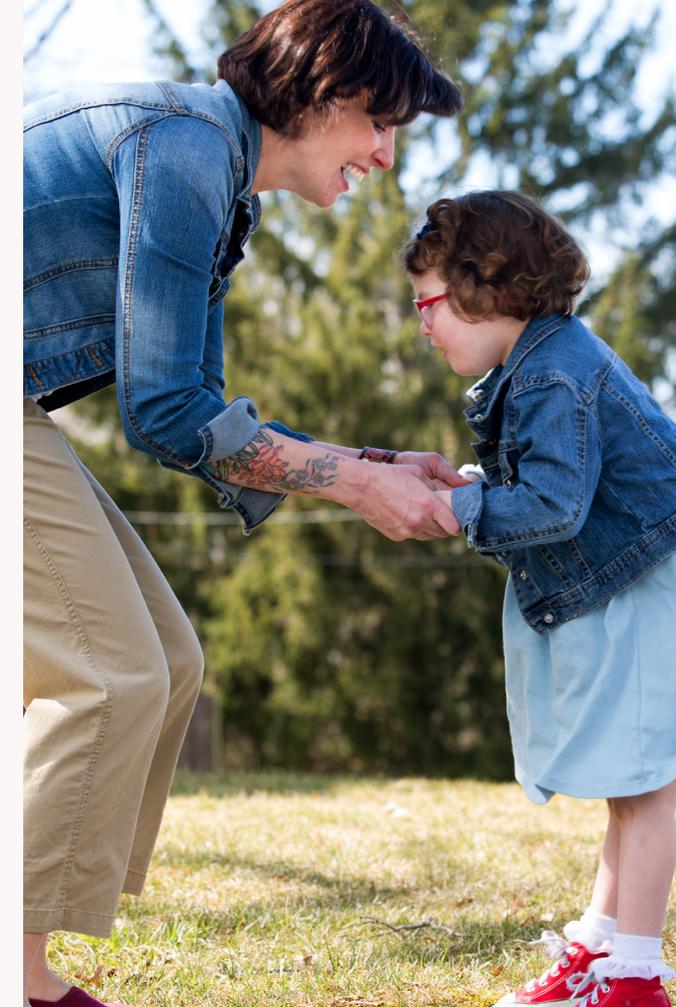
CASE STUDY

Kennedy was diagnosed at the age of three with a rare metabolic disease called S-adenosylhomocysteine hydrolase (AdoHcy) deficiency. Her condition was a disorder involving her liver enzymes. A liver transplant could correct some of the factors contributing to her disease by correcting enzyme levels. AdoHcy had never before been treated with liver transplantation. Because the chances of Kennedy receiving a deceased donor liver were low, living-donor liver transplant was the best possible solution.

OUTCOME

Transplant surgeon, Kyle Soltys, MD, and George Mazariegos, MD, chief of Pediatric Transplantation at Children's, performed Kennedy's surgery. Her condition began to improve dramatically after she received her new liver. Within just a few hours, her enzyme counts were normal. Today, Kennedy is a happy, playful, and loving child.

To learn more about Kennedy's pioneering transplant, read the academic paper, **Liver transplantation for treatment of severe S-adenosylhomocysteine hydrolase deficiency** (*Molecular Genetics and Metabolism* 116 (2015) 44-52).



Kennedy Stevenson is pictured here enjoying time with her mother, Donya.



A history of liver transplant firsts

The Hillman Center for Pediatric Transplantation at Children's Hospital holds a prominent place in the history of pediatric transplantation. Groundbreaking research and advanced training programs have developed innovative therapies for previously fatal liver disorders. We are also one of a few centers to offer adult-to-child living-donor liver transplantation, giving hope to hundreds. Here's what distinguishes our pediatric liver transplant program from the rest:

- **Groundbreaking start** — Our first living-donor liver transplant was performed in 1997 on an 18-month-old boy with biliary atresia, who successfully received a portion of his father's liver.
- **High volumes** — Children's has performed more than 1,700 pediatric liver transplants, more than any other center in the U.S. That includes 130 living-donor liver transplants through June 2016.
- **Improved outcomes** — Children's patient and graft survival rates are consistently higher than national averages. Our three-year patient and graft survival rates for living-donor liver transplants are 100 percent compared to national averages of 96 and 90 percent respectively, according to June 2016 data from the Scientific Registry of Transplantation.
- **Clinical expertise** — We specialize in the most complex and high acuity cases and are leaders in domino and split liver transplants. Our surgeons are also skilled in left and right hepatectomies, which offer a child of any size or age the option of a living donor transplant.

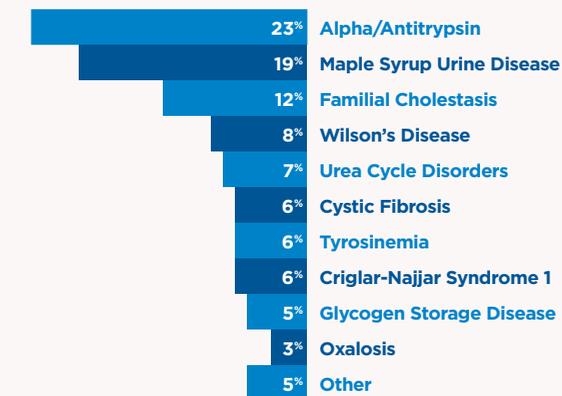
Giving new hope to children with metabolic disease

Liver transplantation is more than a lifesaving procedure; it's also an attractive approach for improving quality of life for patients with inborn metabolic diseases that are liver specific.

At the Hillman Center for Pediatric Transplantation at Children's Hospital, we've performed **more than 330 liver transplants** for metabolic disease, which is more than any other center, including adult facilities. Also, we're leaders in living-donor liver transplants for metabolic disease, which eliminates wait times for a deceased donor and can provide excellent outcomes.

In 2004, we developed the first medical protocol for liver transplantation to cure maple syrup urine disease (MSUD). Today, we've performed more liver transplants for patients with MSUD than any other center in the world. That includes more than 65 patients with 100 percent patient and graft survival.

METABOLIC DISEASES TREATED WITH LIVER TRANSPLANTATION



Data represents metabolic disorders treated by liver transplant at the Hillman Center for Pediatric Transplantation at Children's Hospital from 1981 to June 2015.

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CHILDREN'S EXPERTISE

George Mazariegos, MD, FACS, is the chief of Pediatric Transplantation, Hillman Center for Pediatric Transplantation at Children's Hospital.

Partner with Children's living donor-liver transplant team to give hope to a child



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