MedStar Georgetown Transplant Institute Sets World Record
Two Pediatric Patients with Rare Genetic Disease Get, Give Livers in One Day

Within one 24-hour period, more than 100 healthcare professionals from the MedStar Georgetown Transplant Institute performed the first-ever double domino liver transplant involving two pediatric patients with the inherited metabolic disorder, Maple Syrup Urine Disease (MSUD). In the tightly choreographed sequence, the team replaced the children’s livers with donated organs, and then transplanted the otherwise healthy pediatric livers into two critically ill adults, saving four lives in the process. The event was the first of its kind, anywhere.

"Using liver transplant to treat children with organic acidurias, such as MSUD and propionic acidemia, is a new concept," says Nada Yazigi, MD, a pediatric hepatologist at the Transplant Institute, one of only two centers nationwide offering the approach. “While liver transplant for MSUD is performed to protect the brain from damage caused by metabolic crises, the procedure has the unintended, but welcomed, consequence of expanding the number of livers available for transplantation.”

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That’s because of the nature of metabolic disorders, which encompass literally hundreds of inherited diseases, some quite rare. While all adversely affect the body’s metabolism, their mechanisms differ.

Urea cycle defects, for example, severely deplete production of an essential enzyme. As a result, transplant with a liver capable of churning out the normal enzyme is an effective cure. In such cases, because of the liver-centered defect, the removed liver cannot be transplanted in anyone else.

By contrast, MSUD is a systemic disorder, affecting all enzyme-producing organs in the body, including the liver. But since the body only needs a small percentage of normal enzymes to protect it from severe metabolic attacks, a new liver can offer MSUD patients good brain protection and improved long-term outcomes.

Meanwhile, other than the defective enzymes, the removed MSUD liver retains normal function, making it suitable for transplant in a person not affected by the disorder.

“The transplant recipient’s body accommodates the new MSUD liver by compensating for its metabolic deficiency, thus neutralizing any ill effects of the organic aciduria,” explains Thomas Fishbein, MD, executive director of the Transplant Institute. “In many cases, we are able to give these livers to recipients who desperately need a transplant, but have yet to reach the top of the waiting list.”

The record-setting double domino procedures occurred on Jan. 30, 2015, giving two children with MSUD, ages 6 and 14, passports to a better and longer existence while saving the lives of two adults: one with cirrhosis and the other with primary sclerosing cholangitis. It came hard on the heels of the Transplant Institute’s first domino liver transplant involving an MSUD patient and wait-listed candidate, performed only a month earlier.

The Transplant Institute first performed liver transplantation for MSUD in January 2013. Since then, it has treated more than 30 patients with metabolic genetic disorders, who now comprise between 40 and 45 percent of its most recent pediatric liver transplant recipients.

Patients benefit from the Transplant Institute’s collaboration with Children’s National Medical Center Metabolic Program, one of the most accomplished metabolic disorders team in the world. While the Transplant Institute’s surgeons perform the transplants, experts from both institutions jointly staff the specialized metabolic transplant clinic, assuring optimal pre- and post-transplant care and follow up.

Ideally, the Transplant Institute’s transplant team starts working with a pediatric patient and family right after diagnosis to prepare them for the future, including recognizing the right time for transplant.

“For most newborns in need of liver transplantation, we try to wait until they grow as big as possible before transplantation—providing, of course, that their health permits—to decrease the technical risks of the procedure,” Dr. Yazigi says. “But with metabolic disorder patients, we often don’t have that luxury and need to opt for early transplantation to avoid possible metabolic attacks and resulting brain damage.”

The Transplant Institute is one of the three largest pediatric liver transplant programs in the United States, and among the very few centers to perform the procedure for newborns and infants. In fact, babies less than one year old account for more than 50 percent of all pediatric liver transplants at the Transplant Institute; 25 percent are under six months.

Regardless of age, acuity or diagnosis, however, the Transplant Institute’s pediatric liver transplant team produces impressive results. Data at one-year post-transplant show a 95 percent survival rate, and a 90 percent rate at the three-year mark.

Concludes Dr. Yazigi, “We’re growing and expanding our ability to help children with disabling, often devastating, metabolic errors live longer and better lives. At the same time when possible, we’re improving the chances that someone else will get the liver they need. It’s an exciting time to be working at the Transplant Institute.”
Changes to National Kidney Transplant Allocation System Increase Opportunities for Sicker Patients

In December, the United Network for Organ Sharing (UNOS) revised the criteria governing how its national computerized system matches deceased-donor kidneys with recipients, significantly changing who gets a new organ and when. The move was designed to help reduce multiple disparities in kidney availability and expand access in the face of growing demand and a stagnant supply.

“One of the biggest changes—especially for a program like ours that specializes in hard-to-match cases—is the extra priority assigned to those highly sensitized to antibodies,” says Matthew Cooper, MD, director of Kidney and Pancreas Transplantation at MedStar Georgetown Transplant Institute. “While it’s too early to project the overall ramifications for our region, the new regulations greatly improve the chances that some sicker patients will get a new shot at life.”

Other major differences between the old and new requirements include:

- **Wait-time.** Previously, the clock didn’t start ticking until someone was listed by a transplant program at UNOS, regardless of the severity of illness. Now, after patient evaluation and clearance for transplant, time is calculated from the onset of dialysis.

- **Recipients Matched to Donors.** Another new feature requires an assessment of each candidate’s life expectancy following transplant to determine who might derive the greatest survival benefit from a new kidney.

**An Estimated Post Transplant Survivor (EPTS) score is assigned to all adult candidates on the kidney waiting list and is based on four key factors:**

1. Candidate time on dialysis
2. Current diagnosis of diabetes
3. Prior solid organ transplants
4. Candidate age

“Despite the changes, it’s important to note that no one on the wait-list prior to the implementation of the new system will lose time,” explains Dr. Cooper. “Rather, some candidates may actually gain additional time, moving closer to an organ offer.”

Dr. Cooper was recently elected to a two-year term as associate counselor for UNOS Region 2—encompassing the District of Columbia, Maryland, Virginia, Pennsylvania, Delaware, and New Jersey—starting in July. As part of that process, he automatically becomes counselor for the region in 2017 and assumes a seat on the UNOS Board of Directors, which creates national policy for transplant programs and recipients.

It’s an added responsibility, but one welcomed by Dr. Cooper, who has led the charge locally to assure that every possible donated kidney is put to use.

“We have a dual obligation: to help all patients awaiting a new kidney, and to be good stewards of a rare and precious resource—the organs donated for that purpose.”

MedStar Georgetown Transplant Institute Recruits Donor/Recipients for Paired Kidney Exchanges

Through clinical research, creativity and an aggressive approach, MedStar Georgetown Transplant Institute is known for pushing the boundaries of kidney transplant, helping to increase the number of patients who actually receive organs. Now, a voluntary—and innovative—program is helping to boost opportunities for paired kidney exchanges.

“If we have a patient with an acceptable and compatible living donor, and a delay in transplant will not adversely affect the recipient’s health, we ask if they’d consider joining a pool of patients and donors for a paired exchange,” transplant surgeon Matthew Cooper, MD, explains. “While it potentially means postponing their surgical procedure for a short time, and accepting an organ from an unintended yet equally suitable living donor, it expands the chances that someone else who has had trouble finding a match will pair up with an organ.”

The Transplant Institute is already a recognized leader in incompatible transplants, living donations and paired kidney exchanges. Volume-wise, it is within the top quarter of kidney transplant programs, with outcomes exceeding all national averages despite the number of high-risk patients.

“It’s an opportunity to bring the gift of life to more than one recipient,” says Dr. Cooper. “Not surprisingly, most of our living donor ‘heroes’ willingly embrace the chance to help not only their intended recipient, but also someone they’ve never met.”

For assistance with referrals, call Lindy Spruill at 202-255-6108.
New Specialists in Hepatology Now on Board
Comprehensive Liver Program Offers Complete Array of Medical, Surgical and Transplant Options

In one fell swoop, the medical ranks of MedStar Georgetown Transplant Institute’s liver program doubled in size and capacity when it welcomed three new specialists in January. The addition takes the multidisciplinary center’s proven capabilities in managing complex liver disease, including hepatobiliary tumors, to the next level.

“As one of the largest liver transplant centers in the nation, we offer a comprehensive, integrated approach to care and a complete array of medical and surgical services with superior outcomes,” says Thomas M. Fishbein, MD, executive director for the Transplant Institute and director of liver transplant. “We’re delighted to have these dedicated experts join us in our commitment to excellence in patient care.”

The Transplant Institute performed more than 100 liver transplants last year alone, and consistently produces outcomes that far exceed the national average. However, the program is equally well-known for its ability to forestall or, in some cases, completely avoid the need for a transplant.

At its core is an experienced team of hepatologists, gastroenterologists, interventional radiologists, surgeons, and liver and bile duct oncologists. The combination promotes the most accurate diagnoses and treatments for the full range of hepatic and pancreatic disorders. A host of clinical trials for patients undergoing liver transplantation, tumor resection surgery, or treatment of hepatitis are also offered.

“From ERCP to molecular testing … from portal vein embolization to robotic liver tumor surgery, the Transplant Institute has developed expertise in all applicable technologies for optimal patient results,” Dr. Fishbein notes.

AT A GLANCE
MedStar Georgetown Transplant Institute’s Kidney and Pancreas Transplant Program

- A pioneer in kidney transplant, now celebrating its 40th anniversary
- One of the nation’s largest kidney transplant programs
- Renowned experts in both adult and pediatric procedures
- All available therapies, approaches and resources for the most transplant options
- Site of one of the largest paired kidney exchanges ever undertaken and a national leader in the field
- Organizing center for all incompatible donor/patient pairs in area
- Nationally known for expertise with highly sensitized patients
- One-year patient survival rates above the national average
- Graft outcomes that routinely exceed all national rates for kidney and simultaneous kidney/pancreas transplants
- Cutting-edge techniques and technology
- Extensive clinical research program, including studies of:
  - Early detection of post-transplant viral infections
  - Noninvasive methods to evaluate graft rejection
  - Interventions to avoid delayed graft function in kidney transplants from complex deceased donors

TO SCHEDULE A PATIENT CONSULT, CALL 202-444-3700.
Meet our new Hepatologists

“As one of the largest liver transplant centers in the nation, we offer a comprehensive, integrated approach to care and a complete array of medical and surgical services, with superior outcomes. We’re delighted to have these dedicated experts join us in our commitment to excellence in patient care.”

Thomas Fishbein, MD

Thomas W. Faust, MD, MBE

Thomas W. Faust, MD, MBE, has more than a decade of experience with major liver transplant centers, including the University of Chicago, the University of Pennsylvania and, most recently, the Medical College of Wisconsin. Board certified in internal medicine, gastroenterology and transplant, Dr. Faust specializes in the management of patients with acute and chronic liver diseases, as well as patients who have undergone liver transplantation. His research interests include the use of bio-artificial liver support devices, treatments for patients with viral hepatitis and autoimmune liver diseases, management of acute liver failure, and bioethical implications of liver transplantation.

After receiving a medical degree from the University of Tennessee College of Medicine, Dr. Faust completed a residency in internal medicine at Yale-New Haven Hospital. He followed that with a fellowship in gastroenterology at the University of Texas Southwestern Medical Center at Dallas and a fellowship in hepatology and liver transplantation at the University of Nebraska Medical Center.

Alexander T. Lalos, MD

Board certified in internal medicine and gastroenterology, Alexander T. Lalos, MD, joins MedStar Health from Pennsylvania, where he was a member of Gastrointestinal Consultants of NEPA, P.C., and, previously, an assistant professor of medicine at The Commonwealth Medical College. A specialist in general hepatology and liver transplantation, Dr. Lalos’ clinical interests include liver disease, hepatitis C treatment and complications of cirrhosis.

Dr. Lalos received his medical degree from the University of Pennsylvania, and completed his residency in internal medicine at the University of Virginia. He then completed a gastroenterology fellowship at the University of Connecticut followed by a fellowship in hepatology at the University of Miami Hospital.

Coleman I. Smith, MD

A specialist in hepatology and liver transplantation, Coleman I. Smith, MD, comes to Georgetown from Minnesota, where he worked closely with the University of Minnesota’s liver transplant program. He previously held positions with the University of Minnesota as a professor of medicine and site director of the university’s GI fellowship program at Abbott Northwestern Hospital, and was also medical director of Hepatobiliary Services at the Virginia Piper Cancer Institute in Minneapolis.

His research interests include viral hepatitis and hepatocellular carcinoma, with numerous publications to his credit.

Dr. Smith is a graduate of the University of Sydney Medical School in Sydney, Australia. He fulfilled his medical residency at Sydney’s Royal Prince Alfred Hospital, where he remained to complete fellowships in both gastroenterology and clinical research in gastroenterology. In addition, Dr. Smith was a fellow at the Department of Medicine in Rigshospitalet, Copenhagen, Denmark; the University of Southern California Liver Unit; and Stanford University’s Division of Infectious Disease.

For assistance with referrals, call Ruby Thomas at 202-444-0766.
Intestinal Transplant Volume, Outcomes Among Nation’s Highest

Cumulative Cases Now Top 200

The latest data from independent agencies confirm what many physicians and patients already know: The Center for Intestinal Care and Transplant at MedStar Georgetown University Hospital is the best in the nation.

According to the most recent Scientific Registry of Transplant Recipients (SRTR) report, issued in December, MedStar Georgetown Transplant Institute performed more small bowel transplants than any other U.S. program. That experience is reflected in consistently superior outcomes. Statistics show a one-year survival rate of 94.4 percent for adults and 90.48 for pediatric patients at the Transplant Institute, far exceeding the national averages of 79.45 percent and 86.08 percent, respectively.

The Transplant Institute is the nation’s sole site to be equally experienced with both pediatric and adult intestinal transplant—a distinction that may contribute to its outstanding results with both populations.

Avoiding Intestinal Transplant

Comprehensive, Coordinated Medical and Surgical Solutions

At MedStar Georgetown Transplant Institute, transplant is only one of many therapeutic options possible for patients with disabling and life-threatening intestinal disorders and liver disease. In fact, other medical/surgical procedures account for half of the Center for Intestinal Care and Transplants’ annual patient volume.

“Many times, we don’t know where a patient will land on the continuum of therapies until we’ve completed a thorough evaluation,” says center director Cal Matsumoto, MD, who notes that the Transplant Institute’s equal mix of medical/surgical and transplant cases is unusual in the field.

The center’s multidisciplinary team includes specialists in adult and pediatric surgery, gastroenterology, nutrition, infectious disease, intensive care, wound and ostomy management, HLA tissue typing, anesthesiology, interventional radiology, pathology, and others. All possible therapeutic options are explored, often resolving conditions before transplant is needed.

“We have a high success rate in applying medical, surgical and rehabilitative procedures to a variety of disorders,” Dr. Matsumoto says, “and encourage physicians to refer even seemingly ‘futile’ cases to us for evaluation. Over the years, we’ve been able to give hope to some patients who have been suffering for years.”

Therapies include:

- Intestinal rehabilitation
- Intestinal lengthening procedures
- Autologous intestinal reconstruction
- Complex enterocutaneous fistula surgery
- Complex wound and ostomy management
- Abdominal wall reconstruction
“It’s hard to find both pediatric and adult expertise all in one setting,” says Cal Matsumoto, MD, director of the Center for Intestinal Care and Transplant. “And while there are definite differences, most obviously in terms of anatomy and the size of the operating field, there is some crossover. If we can perform a three-organ transplant in a 5 kilogram baby, then we can certainly do it in a fully developed adult.”

From start to finish, small bowel transplant is extremely complex, requiring a multidisciplinary team and deep infrastructure of ancillary services. Post-transplant, the bowel tends to be less forgiving than other organs and more prone to complications. Any dysfunction can reduce the bowel’s absorption of immunosuppressive medications, leading to potential rejection. As a consequence, patients require constant vigilance and surveillance.

That’s one of the reasons why so few centers tackle the difficult procedure.

“If we can perform a three-organ transplant in a 5 kilogram baby, then we can certainly do it in a fully developed adult.”

Cal Matsumoto, MD

“Patients can suffer complications very quickly if problems are not recognized and acted upon immediately,” explains Dr. Matsumoto. “And while rejection in other solid organ transplants can be detected through a simple blood test, rejection of the small bowel can only be determined through biopsy.”

To ensure patient health, the Transplant Institute follows a rigorous protocol of surveillance for possible rejection. Patients are tested frequently in the period immediately after transplant, with the schedule then tapering off to once every few months and, ultimately, once a year.

Now entering its 12th year, the Center for Intestinal Care and Transplant is one of the longest running, most established and busiest programs in the nation. Last year alone, the center recorded 19 of the demanding procedures, and since then passed a remarkable milestone: the team recently celebrated their 200th intestinal transplant.

Pediatric Solid Organ Transplantation Update
Successful First-Time Symposium to Become Annual Event

On March 20, MedStar Georgetown Transplant Institute hosted a day-long educational conference to promote understanding and early recognition of the major, but often rare, congenital and acquired digestive organ disease and dysfunction that can be helped by the Transplant Institute’s pediatric transplant specialists. The course was designed by Eddie R. Island Jr., MD, associate director, Pediatric Transplantation; Stuart S. Kaufman, MD, medical director, Pediatric Intestinal Rehabilitation and Transplantation; and Cal S. Matsumoto, MD, director, Small Bowel Transplantation.

“Optimal outcomes for pediatric liver, intestinal and pancreatic disorders are definitely helped through early evaluation, diagnosis and proper management,” says Dr. Kaufman. “So we’re trying to raise awareness of these conditions and the treatments available, whether through rehabilitation or transplantation, among pediatric specialists and advanced practice nurses to promote early consults or referrals.”

Faculty for the CME-accredited program included experts from Children’s National Health System and Cincinnati Children’s Hospital Medical Center, as well as the Transplant Institute specialists. Nearly 100 pediatric gastroenterologists, neonatologists, intensivists, emergency physicians, and other healthcare professionals attended. Based upon registrations and feedback, the Transplant Institute plans to offer another program next spring.
Ramping up Research to Advance Patient Care

In 2013, MedStar Georgetown Transplant Institute and Georgetown University Medical Center jointly formed the Center for Translational Transplant Medicine (CTTM) to benefit patients by expediting basic and translational research. Since then, CTTM has added trials, staff and research participants to its roster.

“Between CTTM’s debut and today, we’ve launched approximately 100 clinical trials and doubled enrollment,” says Rhette Lambert, MBA, director of Research Operations. “By comparison, only 85 transplant-related trials were conducted altogether over the previous decade.”

To continue the momentum, the center welcomed Alexander Kroemer, MD, PhD, on Aug. 1. With a fellowship in transplant surgery and a doctorate in transplant immunology, Dr. Kroemer will split his time between patient care and research in the newly created position of transplant lab chief. There, he will lead the basic research team on continuing work on Th17 mediated inflammation, the growth of liver and pancreatic islet cells, and understanding the interaction between the intestinal epithelium and the microbes it must control.

“We need to learn how to trick the immune system into ignoring the new organ, while bolstering its innate response to dangerous pathogens,” says the Transplant Institute executive director Thomas Fishbein, MD. “Fortunately, advances in transplant medicine move rapidly. What goes from bench to bedside really does occur within a couple of years.”

Transplant Digest is a bi-annual publication featuring news of interest to physicians about the MedStar Georgetown Transplant Institute.

Please submit comments or questions to Daphne Torney at 202-444-6815, or by e-mailing torneyd@gunet.georgetown.edu.

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President, MedStar Georgetown University Hospital
Senior Vice President, MedStar Health

S. JOSEPH BRUNO
Chairman of the Board

KENNETH A. SAMET, FACHE
President and CEO, MedStar Health

THOMAS FISHBEIN, MD
Executive Director

Writers
Leslie Whitlinger

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