

Transplant Digest

A PUBLICATION OF MEDSTAR GEORGETOWN TRANSPLANT INSTITUTE



(Left to right) Rohit Satoskar, MD, director of Medical Services, Transplant Institute, discusses a challenging case with transplant surgeon Jason Hawksworth, MD, and hepatologist Christine Hsu, MD.

Liver transplant as an option for non-resectable liver metastases from pancreatic neuroendocrine tumors.

Neuroendocrine tumors originate from the endocrine and nervous systems. These tumors are most often located in the intestine, pancreas, or lung. Data suggest that more than 12,000 people in the U.S. are diagnosed with neuroendocrine tumors each year and more than 175,000 people are currently living with this diagnosis.

While metastatic neuroendocrine tumors in the liver represent a significant challenge for both patients and their healthcare providers, a range of treatment options are available. The choice of options depends on the size, location, and spread of the disease.

Recently, liver transplant has been advocated as an effective treatment for patients with non-resectable liver

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MedStar Georgetown Transplant Oncology Program expands treatment options for patients with GI cancers.

Until recently, the treatment options for patients with hepatocellular carcinoma, hilar cholangiocarcinoma, metastatic pancreatic neuroendocrine tumors, and metastatic colorectal cancer focused on chemotherapy, surgical resection, and radiation. For a growing number of patients, a new treatment option, which is more effective for some cancers, is now an option—transplantation.

The Georgetown Transplant Oncology Program is home to leaders in this

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Members of the MedStar Georgetown Transplant Oncology Program multidisciplinary team consult with a patient: (Left to right) Keith Unger, MD, radiation oncologist; Marcus Noel, MD, gastrointestinal medical oncologist; Emily Winslow, MD, HPB surgeon.

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Letter from the executive director.

Colleagues,

I want to welcome you to the fall 2021 edition of *Transplant Digest*. I hope you all had a good summer and achieved some measure of relief from the pandemic. As the COVID-19 pandemic wears on, we are committed to continuing to provide safe, life-saving care for people in need of transplantation and related hepatobiliary diseases. Since January 2021, we have continued to be one of the nation's busiest transplant programs, performing 193 kidney and 96 liver transplants. Our outcomes remain among the best in the nation.

We continue research on issues related to COVID-19 transplant patients and inflammation and immunity. In fact, in this issue, you will learn about how our team is offering new treatment options for

patients with many diseases, one of which will be a new clinical trial on a therapeutic we are developing to treat COVID-19. We are working on new treatments for patients with G.I. malignancies, including transplantation for patients with unresectable, limited metastatic colorectal cancer and other G.I. cancers. We also share the case of an end-stage Crohn's patient who traveled from Nevada to receive comprehensive care and a small bowel transplant that saved her life when other medical centers had given up hope.

We explain recent changes in kidney allocation and the new Medicare end-stage renal disease treatment choices model and how it will affect your patients and your practice.

As the pandemic drums on a year and a half later, we wish the best for all of you and your patients. We hold out hope that progress on overcoming the pandemic



that so many are contributing to brings it to a speedy end this year. And we pledge to remain busy doing the best we can as providers for our shared patient population.

Sincerely,

A handwritten signature in blue ink that reads "Thomas M. Fishbein, MD". The signature is fluid and cursive, with a small flourish at the end.

Thomas M. Fishbein, MD
Executive Director
MedStar Georgetown
Transplant Institute

Partnership of two nationally recognized programs supports youngest kidney, liver, and intestine patients.

MedStar Georgetown Transplant Institute and Children's National Hospital have rededicated and expanded a partnership that stretches back seventeen years. Pediatric patients with diseases involving the abdominal organs receive the highest level of care through a collaboration that takes advantage of the expertise of both institutions.

This approach to integrated care ensures continuity, consistency, and convenience; it also gives patients and their families access to some of the foremost pediatric kidney and liver surgeons and specialists in the nation. The experienced multidisciplinary teams at Children's National and MedStar Georgetown Transplant Institute guide and support families from evaluation through long-term management after transplantation.

All aspects of renal-related care are delivered at Children's National through on-site nephrology care including dialysis. Children who are candidates for renal transplantation will have surgery at Children's National performed by MedStar Georgetown Transplant Institute surgeons.

Children's National Hospital was ranked among the top ten nationally in the *U.S. News & World Report* 2021-22 Best Children's Hospitals annual rankings. The hospital's nephrology program was ranked sixth among all children's hospitals nationally.

Children needing liver and intestinal transplants have surgery at MedStar Georgetown University Hospital, with evaluation and monitoring of patients with liver disease at Children's National but under the direction of the MedStar Georgetown Transplant Institute team.

"Our transplant program is part of a very special partnership with Children's National. Through the program, adult

living donors are evaluated and operated on at MedStar Georgetown University Hospital, while the child recipient is cared for at Children's National," said Jennifer Verbese, MD, Director of Living Donor Kidney Transplantation and Director of Pediatric Kidney Transplantation at MedStar Georgetown Transplant Institute and the Surgical Director, Pediatric Kidney Transplantation.

The Institute's pediatric kidney, liver, and intestine transplant programs are among the highest volume in the nation, with survival rates in the top tier in the country. Our surgeons are leaders in live donor kidney and liver transplantation for children, approaches that are critical to prompt treatment. Collaboration between the MedStar Georgetown Transplant Institute pediatric hepatology and transplant and the Children's National metabolic

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Ruxolitinib as a treatment for chronic steroid-refractory graft versus host disease in pediatric intestinal transplant patients.

While graft versus host disease (GVHD) is relatively uncommon in most transplant patients, the condition in fact is common in patients who undergo intestinal transplantation because of the donor lymphoid tissue mass that is part of the intestinal component of the graft. GVHD affects approximately 5% to 10% of intestinal transplant patients. Treatment with high dose corticosteroids and titration of the patient's immunosuppressive dose effectively manages GVHD in many patients. For those with chronic, steroid-refractory disease, other treatment options have been limited.

"Ruxolitinib, the first FDA-approved JAK inhibitor, has the potential to treat GVHD in steroid-refractory patients and improve survival."

-Shahira Ghobrial, PharmD, MPH, BCPPS

The team at MedStar Georgetown Transplant Institute is actively involved in ongoing basic science and translational research into a wide range of issues surrounding GVHD. Three papers have recently been published on the topic: *CD69+ resident memory T cells are associated with graft-versus-host disease in intestinal transplantation,*

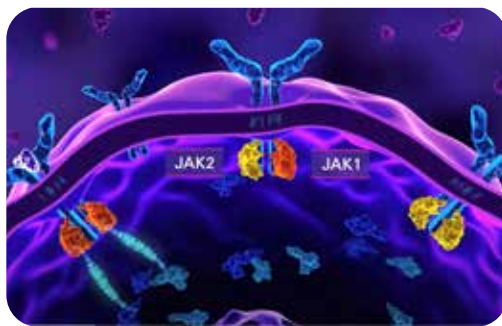


Image used with permission from Incyte Corporation—Jakafi® ruxolitinib Mechanism of Action (MOA) Video—YouTube

published in the *American Journal of Transplantation*, May 2021; *Graft versus Host Disease After Intestinal Transplantation: A Single Center Experience*, published in *Transplant Direct*.

The third paper, published in *Pediatric Transplantation* in 2021, *Efficacy and feasibility of ruxolitinib in chronic steroid refractory GVHD in a pediatric intestine transplant*, focuses on a new treatment option for pediatric patients—ruxolitinib.

"Because Janus kinase 1 (JAK 1) and JAK 2 have been implicated in the pathogenesis of acute GVHD, ruxolitinib, the first FDA-approved JAK inhibitor, has the potential to treat GVHD in steroid-refractory patients and improve survival," explained Shahira Ghobrial, PharmD, MPH, BCPPS, Pediatric Critical Care and Transplant Clinical Pharmacist at MedStar Georgetown University Hospital. "It has

been studied in pediatric patients with steroid-refractory GVHD who have undergone hematopoietic stem cell transplantation and the FDA has issued an approval for use of the drug in pediatric patients 12 and older."

Case report

Patient

24-month-old boy with short bowel syndrome from the midgut volvulus, one-year post-liver-small bowel transplant. Admitted with a rash typical for chronic GVHD involving the face, trunk, and rectosigmoid colon, with histology showing apoptosis in multiple crypts without any features of infection. Symptoms started almost six months prior to this hospital admission.

Diagnosis

Graft versus host disease (GVHD) involving native pancreas, face, trunk, rectosigmoid colon.

Treatment

Initial treatment: Cycle of high-dose methylprednisolone at 20 mg/kg/day intravenous, and tacrolimus oral dose decreased and adjusted per protocol. Initially, the rash had partial response to treatment but recurred after steroid was tapered.

Subsequent treatment

Anti-thymocyte globulin and recycled high-dose steroids followed by slow steroid taper over several weeks. Tacrolimus ointment (0.1%) and triamcinolone 0.5% cream topically.

In spite of these treatments, the patient continued to spend over two months in intensive care. Ruxolitinib was initiated and patient had complete clearance of skin GVHD (negative histology) by day 17. Throughout treatment, the patient's graft function was excellent, he tolerated full enteral nutrition, and did not develop any new infections other than a minor issue at the dialysis catheter site.



Shahira Ghobrial, PharmD, MPH, BCPPS consults with Rigal Civil, CPhT.

End-stage renal disease treatment choices model incentivizes transplant.

In January, the Centers for Medicare and Medicaid Services (CMS) introduced the new End-Stage Renal Disease (ESRD) Treatment Choices (ETC) Model. A key feature of the model is encouraging ESRD facilities and treating clinicians to target higher patient transplant waitlist rates and higher living donor transplant rates. The model does this through positive or negative payment adjustments to facilities and clinicians.

The goal of the model is to ensure that healthcare providers educate every ESRD patient about all available treatment options, including home dialysis and especially, transplantation. Both of these treatments are effective, but underutilized in the U.S. Through the ETC model, CMS is testing whether increased use of these approaches will enhance quality of care and reduce Medicare

According to the Centers for Medicare and Medicaid Services, approximately 30% of kidney care providers in the U.S. will be engaged with the ETC model. Patients excluded from the model include those receiving dialysis for acute kidney injury, people diagnosed with dementia, those 75 or older, in hospice, or those residing in or receiving dialysis in a skilled nursing facility.

expenditures. Encouraging transplantation, in particular living donor transplant, also offers further benefit to patients in terms of quality of life and long-term outcomes.

Provider participation in the ETC model is focused on 95 randomly-selected geographic areas, known as Hospital Referral Regions.

Maximum adjustments by PPA

PPA Period:

		1 and 2	3 and 4	5 and 6	7 and 8	9 and 10
Managing Clinician	Positive adjustment	4%	5%	6%	7%	8%
	Negative adjustment	-5%	-6%	-7%	-8%	-9%
ESRD Facility	Positive adjustment	4%	5%	6%	7%	8%
	Negative adjustment	-5%	-6%	-7%	-9%	-10%

Through referral for transplant, providers can meet or exceed CMS' Performance Payment Adjustments (PPAs). PPAs will be made to providers' per treatment payments for dialysis based on the rate of home dialysis and transplant rate. Performance standards are based on the sum of patients on the transplant waitlist and living donor transplant rates.

A uniformly positive adjustment will be applied on Medicare claims for home dialysis during the initial three years of the model. This will provide an additional payment to selected facilities and clinicians for supporting patients' use of home dialysis. A second adjustment will apply to both home and in-center dialysis and related claims. This adjustment could be either positive or negative, depending on whether patients choose home dialysis and/or elect to list for transplantation.

"Referring patients for evaluation for kidney transplant sooner will benefit both your patients and your practice under the ETC model," explains Matthew Cooper, MD, MedStar Georgetown Transplant Institute Director of Kidney and Pancreas Transplantation. "The success of transplantation has always been driven by the coordination of care with referring providers and dialysis units. We stand ready to collaborate

with patients and providers to accept new referrals and add appropriate patients to the deceased donor waitlist."

Partnership of two nationally recognized programs (continued from page 2)

liver disease, liver tumor, and GI programs provides optimal integration of care for children with rare diseases.

Added Asha Moudgil, MD, Medical Director, Transplant at Children's National, "We are both high volume centers, offering the most robust experience for our patients. Children's National Hospital provides the entire continuum of care with experts in every specialty, including fetal medicine, genetics and metabolism, nephrology, physical therapy and rehabilitation, urology, and radiology, as well as psychologists, social workers, and child life specialists who support children and families in what can be a stressful time. Having this entire health ecosystem in place is what makes a transplant successful. Together we can take advantage of our combined experience and give patients the best care possible."

New kidney allocation system focuses on overcoming geographic barriers.

Recent improvements in the process for pairing deceased donor kidneys with patients on the transplant list has decreased wait times and improved outcomes, including graft and patient survival.

In 2014, the United Network for Organ Sharing (UNOS) changed the kidney allocation system, replacing a largely first-come, first-served system with one that is primarily driven by time on dialysis. The system also allows patients to accrue time back to the date they started dialysis regardless of when they were listed for transplant. The system also applies an algorithm that pairs the healthiest donor kidneys with the healthiest recipients, while prioritizing pediatric patients and highly sensitized patients for whom it is more difficult to find a compatible organ.

Although transplant rates and outcomes improved under the 2014 system revamp, there were still geographic challenges that hindered the equitable and optimal distribution of deceased donor kidneys. The majority of organ offers were initially made within a specific donor service area (see Figure 1), followed by within the

“As we have for years, we will continue to strongly encourage patients who are listed to try to find a living donor.”

**-Matthew Cooper, MD,
MedStar Georgetown Transplant Institute
Director of Kidney and Pancreas Transplantation**

UNOS region (Figure 2). If the organ is not accepted within those two areas, it would then be offered to a patient nationally. This method was not optimal, however, because complex travel routes could result in excessive cold ischemia times for the donated organ.

System change eliminates service areas and regions, increases need for living donation

To address this issue, UNOS has made a new change to the kidney allocation system. Starting in March 2021, donor service areas and regions were eliminated and organ offers now are made, in part, based on a fixed distance between the hospital where the donation occurs and the transplant center. Ideally, the new system increases opportunities for transplant of listed patients by automatically increasing the number of offers available per transplant center. It also is designed to shorten the time it takes to identify the most appropriate recipient.

The process of organ allocation is largely invisible to patients and should not change transplant planning. “While our patients don’t need to do anything differently because of these changes, the new system requires that they are ready, more than ever, when an offer is made by assuring their testing and contact information are updated and correct,” says Matthew Cooper, MD, MedStar Georgetown Transplant Institute Director of Kidney and Pancreas Transplantation. “We also want them to stay as physically and emotionally healthy as possible while they wait. This also decreases the importance of multiple listing because patients will be primarily eligible for organs now at donor hospitals over great distances. More than ever, transplant patients should choose a center that has a demonstrated history of transplanting patients and not one that simply adds them to a waiting list.”

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Figure 1

Donation Service Areas



Figure 2

UNOS Regions



Old allocation system: Organs are first offered within the donation service area (DSA) or the organ procurement and transplantation network region.

Meet our new physicians.



Nadiesda Costa, MD, MPH

Dr. Costa is a board-certified nephrologist with more than 10 years' experience in transplant nephrology. She is also board certified in internal medicine. She comes to MedStar Georgetown Transplant Institute from the University of Maryland Medical System, where the majority of her patients were medically complex.

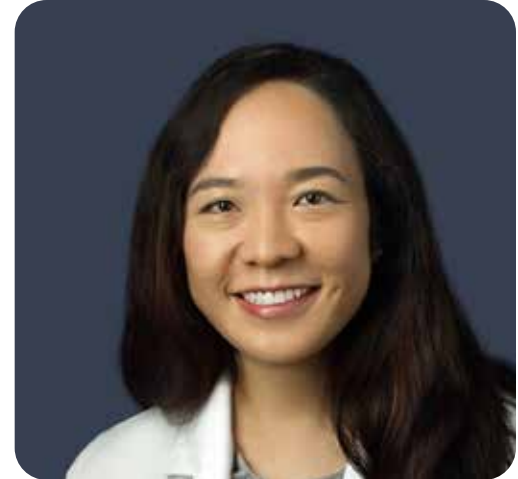
She earned her medical degree from Universidad Autonoma de Santo Domingo, Escuela de Medicina in the Dominican Republic and her MPH with a focus in epidemiology from University of North Carolina Gillings School

of Global Public Health. Dr. Costa completed her internship, residency, and fellowship in nephrology at East Carolina University, Brody School of Medicine. She also completed a fellowship in kidney transplantation at University of North Carolina School of Medicine.

In addition to her clinical work, Dr. Costa has served as a clinical assistant professor in internal medicine and nephrology and hypertension at East Carolina University, Brody School of Medicine and assistant professor, Department of Medicine, Division of Nephrology at University of Maryland School of Medicine. Since 2017, she has been the commissioner representing transplantation on the Maryland State Commission on Kidney Disease.

She has published in several peer-reviewed journals, including *Transplantation*, *American Journal of Transplantation*, and *Transplant International* and has written book chapters. Her areas of special interest and research include transplant diagnostics and long-term post-transplant outcomes.

Dr. Costa also operates a clinic for Spanish language speakers at MedStar Washington Hospital Center.



Ahyoung Jacy Kim, MD

Dr. Kim is a fellowship-trained transplant hepatologist and is board certified in internal medicine. She treats patients across the full range of liver diseases, including providing care for pre- and post-transplant patients and patients with end-stage liver disease.

She earned her medical degree from Columbia University College of Surgeons and Physicians and completed her internship and residency at the Cleveland Clinic Foundation. Dr. Kim completed fellowships in gastroenterology and transplant hepatology at the Johns Hopkins Hospital.

Dr. Kim has published in several peer-reviewed journals, including the *Journal of Clinical Transplant Hepatology*, *Circulation*, and the *Journal of Thoracic Cardiovascular Surgery*. Dr. Kim has also presented at national conferences.

Brian M. Nguyen, MD

Dr. Nguyen is a board-certified, fellowship-trained abdominal transplant and hepatopancreaticobiliary (HPB) surgeon. His areas of special expertise include kidney, pancreas, liver, and small bowel transplantation and HPB disease.

Dr. Nguyen received his medical degree from Saint Louis University School of Medicine, St. Louis, Missouri; his residency at University of Southern California/LAC+USC General Surgery, Los Angeles, California; and fellowship in abdominal transplant and hepatopancreaticobiliary surgery at MedStar Georgetown Transplant Institute.



Dr. Nguyen holds certifications in laparoscopic and endoscopic surgery and use of the Da Vinci Xi Surgical System. He has been published in several peer-reviewed journals, including *Transplantation Direct*, *Journal of American College of Surgeons*, *Journal of Critical Care*, *American Journal of Transplantation*, and *Gastroenterology* and has presented at national conferences and symposia.

Case study: Successful intestinal transplant for a patient with long-standing medically refractory Crohn's disease and short gut syndrome.

The patient, a 36-year-old female, self-referred to the Center for Intestinal Care and Transplantation after physicians in her home state said there were no more treatment options they could offer, and prepared her for hospice. The patient was diagnosed at the age of 21 with fibrostenosing Crohn's disease that was medically refractory. Over the course her life, her disease led to structural complications, including strictures and enterocutaneous fistulae necessitating innumerable operations resulting in metabolic instability, intractable diarrhea, and significant weight loss.

She had undergone 29 surgical procedures to treat disease-related complications in the bowel and adjacent organs. As a result, she developed short gut syndrome with only six feet (180cm) of healthy bowel remaining. The patient had an undulating clinical course of disease flares characterized by fluid imbalance and intractable nausea due to passive dilation of the bowel with dysmotility, and issues with total parenteral nutrition (TPN) and bloodstream infections over the preceding decade.

Sukanya Subramanian, MD, small bowel adult transplant gastroenterologist, assessed the patient and attempted to rehabilitate her bowel function. Two critical steps in her care involved optimizing her immunosuppression with therapeutic drug monitoring to control the Crohn's inflammation and salvage as much of her bowel as possible and starting total parenteral nutrition to improve her nutritional status. She then underwent a rehabilitative surgery to address her small bowel stricture and chronic enterocutaneous fistula, which conferred greater clinical stability. She had 150cm of residual small bowel and embarked on medical therapies but remained TPN dependent with infectious complications.

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After being referred to hospice, Katie Silva-Mendez found new hope at MedStar Georgetown Transplant Institute. Photo courtesy of Generation Media LLC

Expert care for patients with the most complex intestinal conditions.

The Center for Intestinal Care and Transplantation at MedStar Georgetown Transplant Institute performs the highest volume of intestinal transplants in the nation—approximately 20% of all intestinal transplants performed in the U.S., and the highest volume globally. Ours has been the highest volume program for the last decade, performing 181 transplants.

Our overall outcomes are superior and ours is the only SRTR 5 tier program for one-year pediatric survival in a 750 mile radius.

Moreover, we specialize in treating the most complex cases of intestinal failure, offering intestinal rehabilitation as well as medical and surgical treatments to help patients avoid transplantation whenever possible.

Our experienced, multidisciplinary team provides comprehensive care for patients with the full range of intestinal conditions, including:

- Short gut syndrome/Intestinal failure
- Complex enterocutaneous fistulae
- Inflammatory bowel disease
- Acute and chronic portomesenteric thrombosis
- GI motility disorders
- GI malignancy
- Mesenteric desmoid tumors
- Malabsorption syndromes

The team's core physicians and surgeons have been with the program since 2003, caring for patients with the most difficult-to-treat conditions who other centers turn away. The Center's physicians are also involved in ground-breaking basic science and translational research on intestinal disease as well as pharmacological trials.

MedStar Georgetown Transplant Oncology Program expands treatment options for patients with GI cancers. (continued from page 1)

emerging field. Specialists on the team are members of the region's largest and highest volume pancreas and liver disease center; medical and radiation oncologists from the Georgetown Lombardi Cancer Center, the only National Cancer Institute (NCI)-designated comprehensive cancer center in the region; transplant surgeons from the MedStar Georgetown Transplant Institute; and members of the MedStar Georgetown Hepatopancreaticobiliary Program.

Who is a candidate for transplantation?

Determining which patients are appropriate for consideration for a transplant is a two-step process. The team first considers whether a transplant is an oncologically sound option for the patient. This is informed by the type of cancer the patient has been diagnosed with and what other treatment options have already been tried. The second step is to determine if transplantation is technically and physiologically feasible, which can be affected by the patient's overall



The hepatopancreaticobiliary surgical team at work.

health, whether the tumor is unresectable, if there is lymph node involvement, and the presence of distant disease.

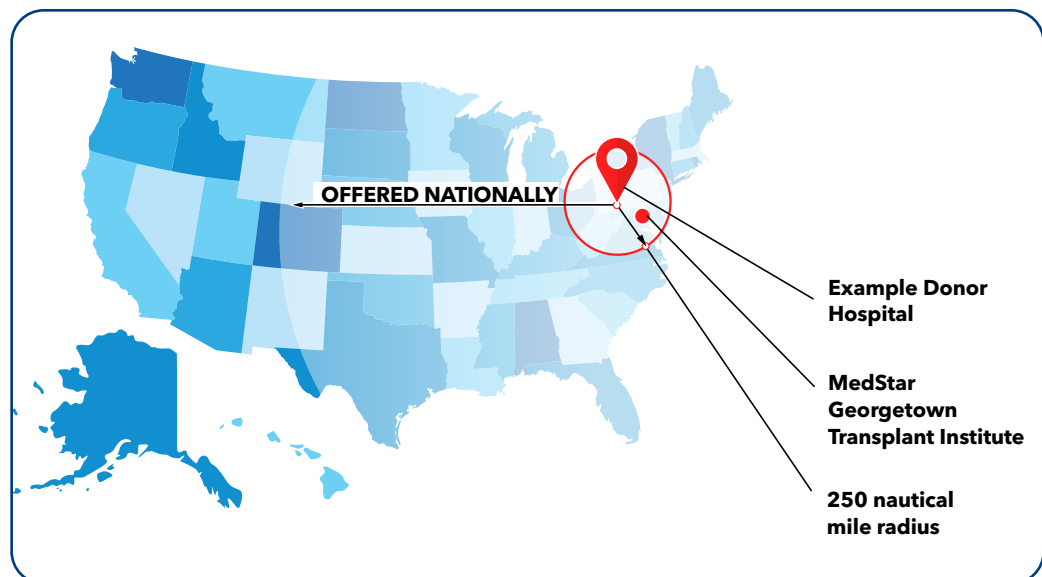
Either deceased or living donor livers can be used for transplants for metastatic neuroendocrine tumors from the pancreas. For transplants for hepatocellular carcinoma, hilar glandular carcinoma, and metastatic colorectal cancer, currently only living donor organs can be used until UNOS designates a pathway for these uses.

"The best approach is for treating physicians to refer patients to us for evaluation as early as possible, because some diagnostic procedures, like transabdominal biopsy, and treatments can affect whether the patient is a candidate for transplant," explains Emily Winslow, MD, MedStar's Regional Chief of Hepatopancreaticobiliary Surgery.

New kidney allocation system focuses on geographic barriers. (continued from page 5)

The new allocation system is expected to heighten the importance of living donation. Due to population density and the concentration of transplant centers in the East, and particularly in the Delmarva region, the number of local programs that will have access to available deceased donor kidneys will significantly increase. For example, Philadelphia has 11 kidney programs and the New York metro area has 10. This means that many more centers will compete for the same pool of donor organs. To ensure patients continue to have access to needed transplants, all physicians should educate patients about the living donor option.

Adds Dr. Cooper, "As we have for years, we will continue to strongly encourage patients who are listed to try to find a living donor, which



New system: Initial offers will be made based on listed patients at programs within a 250 mile radius.

we can help them do, for several reasons. Organs are healthier, they experience less cold ischemic time, and we aren't competing with other centers for a

limited supply of deceased donor kidneys, all of which can help shorten wait time to transplant. These factors lead to better overall outcomes."

Matthew Cooper, MD, Director of Kidney and Pancreas Transplantation, named UNOS President.

Matthew Cooper, MD, Director of Kidney and Pancreas Transplantation at MedStar Georgetown Transplant Institute, has been named president of the United Network for Organ Sharing (UNOS) Board of Directors.

"I am eager to work alongside the UNOS board, colleagues, physicians, policymakers and members of the community to improve and expand equitable access to this lifesaving care," said Dr. Cooper.

Since 2004, Dr. Cooper has been closely involved with UNOS, serving as a representative on the Living Donor Committee, and later as Vice Chair and then Chair of that committee. In 2012, he began a two-year period of elected service on the UNOS Board. He has served on the inaugural Kidney Paired Donation (KPD) subcommittee, the Policy Oversight Committee, the Membership and Professional Affairs Committee, and as co-chair of the Ad-hoc Systems Performance Workgroup, among other roles.

"We are excited to have Dr. Cooper as the new president of the UNOS Board of Directors," said UNOS CEO Brian Shepard. "His record of service to the transplant community, innovative work at the MedStar Georgetown Transplant Institute, and ongoing advocacy for patients will help move UNOS and the donation and transplant community forward over the coming year."



Matthew Cooper, MD, Director of Kidney and Pancreas Transplantation at MedStar Georgetown Transplant Institute

Case study: Successful intestinal transplant for a patient with long-standing medically refractory Crohn's disease and short gut syndrome. (continued from page 7)

After two years of medical management she underwent isolated intestinal transplantation performed by Cal Matsumoto, MD, small bowel and liver transplant surgeon and director of the Center for Intestinal Care and Transplant at MedStar Georgetown Transplant Institute.

The patient achieved enteral autonomy within the first few weeks after transplant. As of this time, she has not experienced Crohn's recurrence in the graft and takes no pain or anti-nausea medications. She has remained out of the hospital since transplantation and is enjoying a significantly improved quality of life. She continues to be closely monitored for any recurrence of Crohn's disease.

The vast majority of patients with Crohn's disease and short bowel syndrome have undergone only three or four surgeries. In some cases the fear of rendering a patient short gut from repeated surgery stands in the way of appropriate care. Referring these patients to centers with expertise in intestinal failure



allows for comprehensive rehabilitative interventions and referral for intestinal transplant when appropriate.

"There is a lack of recognition of transplant as a treatment for Crohn's disease," Dr. Subramanian explains. Crohn's disease is a disorder of a dysregulated immune system with manifestations in the bowel. While intestinal transplant does not cure the disease, it is a valuable intervention in select patients, for which conventional treatments have shortcomings. We carefully evaluate each patient to first consider intestinal rehabilitation using a variety of dietary, medical and non-transplant surgical

approaches to restore health and well-being. We also have numerous clinical trials for intestinal failure. When a patient has an aggressive phenotype of the disease with chronic persistent strictures or fistulae, has undergone three or four surgeries or has been on TPN for more than a year, physicians should consider referring them for a transplant evaluation."

You can hear the patient's story in her own words on the YouTube channel: [Tinyurl.com/3tmtr653](https://www.youtube.com/channel/UC3tmtr653)

metastases. Of course, not every patient with metastatic liver disease can be transplanted. The primary tumor must be resected before liver transplant can be considered. It is equally important to consider the aggressiveness of the tumor, which can be assessed using tumor markers that can differentiate an aggressive tumor from a more indolent one.

In most cases, other medical therapy, including chemotherapy and other treatments, have been exhausted before transplant is considered. With more than 14,000 people on the waiting list for a liver transplant in the U.S., and a shortage of donated organs, the waiting time can be lengthy, however. Unfortunately, this means that 25 to 30% of patients on the waitlist never receive the transplant they need because they become too sick for transplant or die.

A living donor liver transplant (LDLT) can allow patients to get transplanted sooner, before the cancer spreads further or the patient becomes too ill to be an eligible transplant candidate. Other advantages of LDLT include:

- Healthier recipients have a lower risk of complications during and after transplant surgery.
- Organ quality may be higher from living donors who undergo extensive testing.
- Surgery can be scheduled when the recipient is healthiest and when convenient for the donor.

Juan Francisco Guerra, MD, living donor liver surgeon, and Krista Colas, RN, living donor coordinator, explain the donor surgery and recovery to a potential living donor.

Case study

The patient, a 62-year-old female with history of a pancreatic neuroendocrine tumor with metastases to the liver, was evaluated at MedStar Georgetown Transplant Institute. She had undergone different modalities of treatment, including chemotherapies, ablations of her liver tumors, and the placement of multiple biliary drains.

To determine if she would be a suitable candidate for liver transplantation, she first underwent a minimally invasive resection of the pancreas, the location of the primary tumor. After a period of recovery and follow up that determined she had stable disease, she was placed on the national waitlist for a liver transplant from a deceased donor.

After a period of time during which no deceased donor liver was offered,

the team recommended she proceed with a living donor liver transplant. The patient's 27-year-old daughter was found to be a perfect match, but the patient had antibodies against this donor. The transplant team determined the best approach was to desensitize the recipient.

Different immunomodulators were used to decrease the number of antibodies the patient had against the donor. After multiple rounds of treatment, the patient cleared all her antibodies and subsequently was able to proceed with living donor liver transplant.

We transplanted 60% of the donor's liver into the patient. From a surgical and immunological standpoint both patients did exceptionally well post-transplant and experienced no complications.



A dedicated living liver donor team focused on donor safety and superior patient outcomes

The dedicated LDLT team at MedStar Georgetown Transplant Institute evaluates all potential living liver donor candidates. Donor safety is our number one priority and an extensive surgical, medical, and psycho-social evaluation is conducted for every potential donor. Strict protocols are followed

through the entire process to ensure donor safety.

Potential donors are evaluated by a multidisciplinary team of specialists that includes a living donor surgeon, hepatologist, social worker, and others based on the donor's medical condition. Throughout the

entire process the potential donor is guided by our living donor coordinator.

After recovery from surgery, which typically takes a few weeks, donors and recipients resume an excellent quality of life with few restrictions.

By the numbers: MedStar Georgetown Transplant Institute.

Liver Transplant Program

- The **region's only 5-tier program** for 1-year organ survival after liver transplant
- **Top 25 percent in volume** of liver transplants in U.S.
- **Superior 1-year adult graft survival outcomes** compared to local programs
- **Transplanted a higher proportion of the sickest (Status 1) patients**
- **Among the top 20 programs** in the U.S. with liver transplant **outcomes statistically better than expected**
- **More minority liver transplant candidates** than the national waiting list

Pediatric Liver Transplant Program

- Among **top 10 programs by volume** in the country
- **95.08 percent 3-year survival rate**

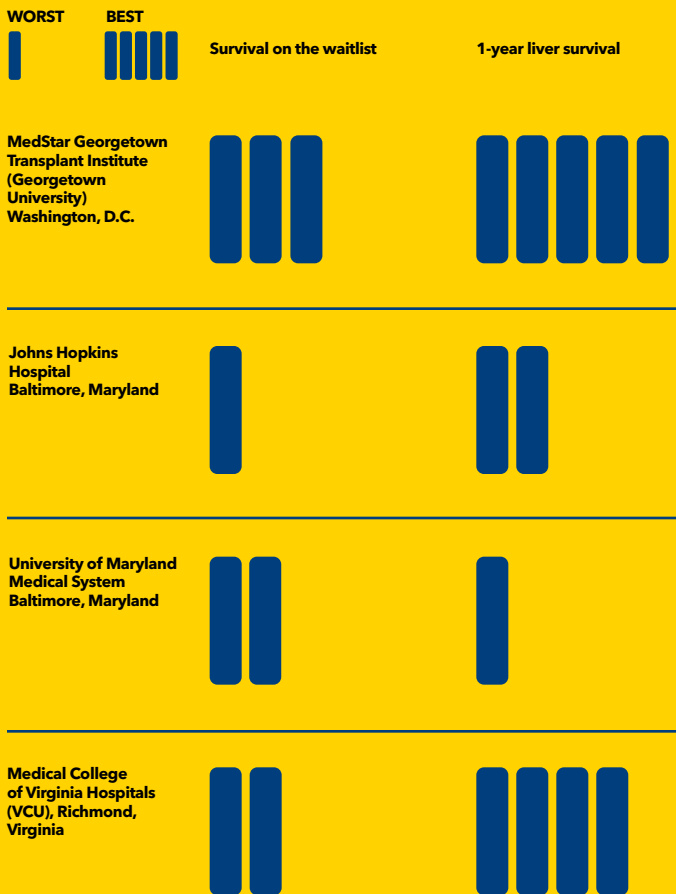
Kidney Transplant Program

- **Among the top 12 programs in volume of kidney transplants** in the U.S.
- **Highest volume** compared to other Washington, D.C. centers
- **304 total kidney transplants** performed in 2020
- **101 living donor transplants** in 2020, more than any other program in the region, and a **top 10** in the country
- Participates in the **largest worldwide paired kidney exchange** sharing program

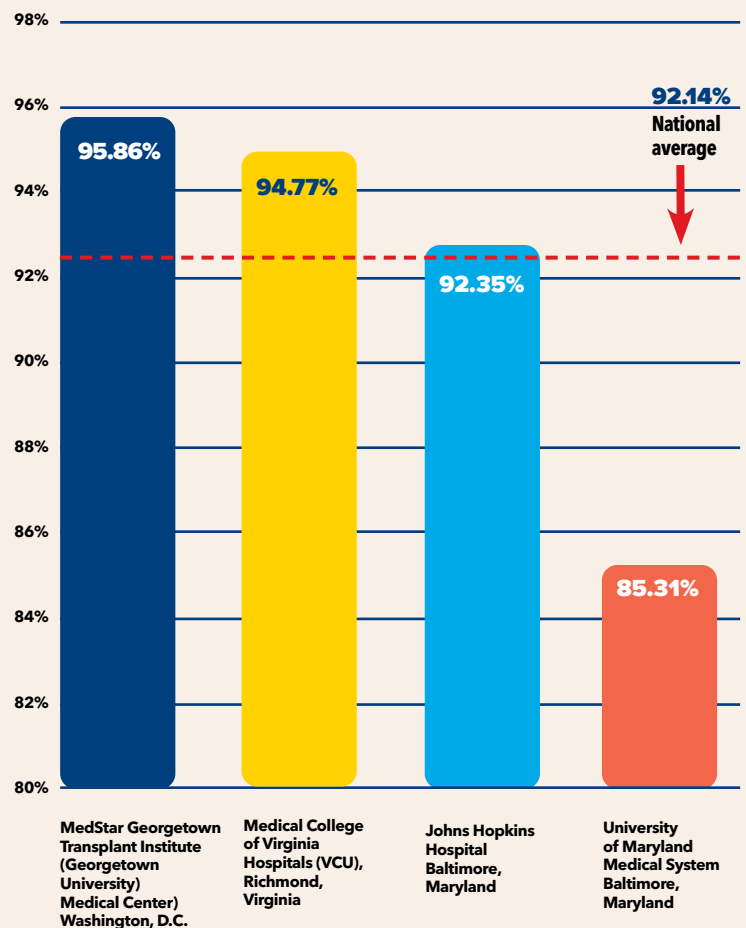
Other highlights

- Among **top 5 intestinal transplant programs by volume** in the U.S., with patients from 15 countries
- **Eleventh largest program by volume** for pancreas transplants in the U.S.
- **Top program by volume** for all abdominal transplants in the U.S.
- **44 active clinical trials**

The region's only liver transplant program to achieve an SRTR 5-tier rating



Adult one year survival with functioning graft exceeds local and national liver programs



Data above SRTR.org, Published on 7/6/2021, Data from 4/30/21
 Single organ transplants performed between 01/01/2018 and 03/12/2020
 From <https://www.srtr.org/transplant-centers/?&organ=liver&recipientType=adult&location=20037&distance=750&sort=volume&page=2>

Transplant Digest

A BI-ANNUAL PUBLICATION OF
MEDSTAR GEORGETOWN TRANSPLANT INSTITUTE

New research yields better treatment for PFIC.

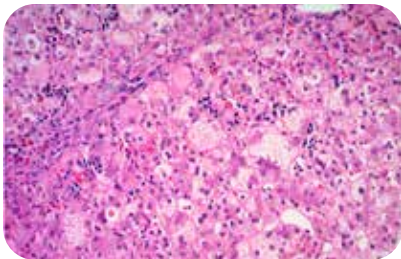
Progressive familial intrahepatic cholestasis (PFIC) is a rare genetic liver disease that leads to chronic liver disease in children and a need for liver transplantation. There are several different types of PFIC. In children, PFIC represents 10 to 15% of causes of jaundice and 10 to 15% of indications for liver transplantations.

MedStar Georgetown Transplant Institute is one of the pediatric liver centers in the United States participating in a Phase III clinical trial of a drug that has been shown in earlier Phase II trials to lead to significant improvements in liver disease, quality of life, and catch up growth in children who responded to the drug. This drug has the potential to change the future for the better for children with PFIC given the current absence of approved pharmacological therapy for this disease.

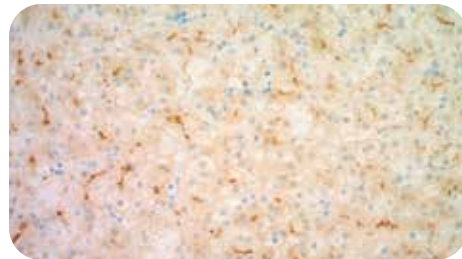
The Pediatric Liver Transplant Program at the Institute is among the top 10 programs by volume in the country, and has a 95% three-year survival rate.

Liver biopsy of a patient with type 2 PFIC.

H&E



Immunohistochemistry shows abnormal BSEP protein



To refer a patient, call **202-444-3700** or visit
[MedStarGeorgetown.org/Transplant](https://www.MedStarGeorgetown.org/Transplant).

Some of the photos in this newsletter were selected prior to the COVID-19 pandemic. All patients and providers are expected to follow the current MedStar Health guidelines for safety, including proper masking and physical distancing where appropriate. Learn more at [MedStarHealth.org/Safe](https://www.MedStarHealth.org/Safe).

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

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

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