

NEPHROLOGY UPDATE

Record Growth in Transplant Nephrology Program

At Barnes-Jewish Hospital and Washington University School of Medicine this year, the number of kidney transplants is at a record high.

“We’ve seen a 21 percent increase in the number of referrals for kidney transplant,” says Tarek Alhamad, MD, medical director of transplant nephrology. “Actual transplants are up, too. From January to August last year we did 159 kidney transplants and this year, during the same timeframe, we performed 203 transplants. We’re on track to surpass the record 241 kidney transplants we did last year.”

The adult kidney transplant program is now one of the largest in the country and has garnered a reputation for excellent outcomes and aggressive patient follow-up, which has minimized infections and readmissions. Growth in the program, says Alhamad, is due to physician and surgical expertise as well as extensive community outreach to dialysis centers, individual patients and community nephrologists to promote the benefits of living kidney transplants.

Within the past year, the transplant nephrology program has opened a satellite clinic in south St. Louis County, started regular onsite outreach efforts in southern Missouri and Illinois and initiated a quarterly living donor educational program where potential living donors can speak directly with transplant recipients and coordinators to learn about living donation, including paired kidney exchanges and ABO incompatible transplants. As a result, more than 300 people have inquired about living kidney donation. Living donor transplants

currently are up almost 40 percent this year over 2018.

“A living kidney transplant saves years of dialysis and its accompanying medical risks and offers an excellent quality of life,” says Alhamad. “With

an average wait time for a cadaver kidney being almost three years in this region and up to 10 years elsewhere, it makes sense to encourage living donations.”

The push is in line with a White House Executive Order announced in July that not only overhauled how kidney patients are managed but also impacts how cadaver organs are allocated across the country. As part of the order, the Department of Health and Human Services has a goal that 80 percent of all new end stage renal disease patients will receive either home dialysis or transplant. By 2023, it also wants to double the number of kidneys available for transplant, which Alhamad notes can only be accomplished with a vigorous educational campaign for living donation in addition to cadaver donations.

The 22 percent increase in referrals translates into more than 500 kidney transplant evaluations so far this year. To handle the volume, the transplant nephrology team now includes five physicians. The latest to join the faculty is Haris Murad, MD, who recently completed a fellowship in transplant nephrology at Yale University before coming to Washington University School



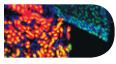
Tarek Alhamad, MD, with the transplant nephrology team during consult rounds.

of Medicine in July. Nurse practitioners, pre-transplant coordinators and two nephrology transplant fellows round out the team. Rowena Delos Santos, MD, director of the transplant nephrology fellowship, says applicants are drawn to the diversity and volume of cases seen.

Delos Santos, who also oversees the high risk living donor program, has evolved the fellowship to include multidisciplinary didactic sessions that are attended by pharmacists in addition to fellows and attending physicians. Expanded journal sessions integrate outside specialists, such as transplant administrators, specialists from other fields of transplant, and HLA laboratory directors. Two-week rotations through other organ transplant programs such as heart and liver also are incorporated as part of the training.

“Patient immunosuppression and medical management are different depending upon the organ,” she says, “Because transplant nephrologists often are called in for consults with all types of organ transplants, we need to have opportunities for our trainees to experience that. We’ve also had our fellows go into a lab to see how

continued on page 2



Message from the Chief



It gives me great pleasure to share news that Tarek Alhamad, MD, Medical Director of Kidney and Pancreas Transplant, will receive an Award

of Excellence from the National Kidney Foundation serving Eastern Missouri, Metro East, and Arkansas. The award, the local foundation's highest honor, recognizes individuals for their outstanding accomplishments towards the awareness, prevention and treatment of kidney disease. Tarek also is honored for his advocacy efforts that have heightened awareness of organ allocation policies and outreach.

The recognition comes at a time when a White House Executive Order announced earlier this year is creating an increased emphasis on living donor transplant as well as on home dialysis. The aim is to improve the care of patients with kidney disease — good news because an estimated 37 million people in this country have chronic kidney disease and more than 600,000 are diagnosed with kidney failure. I am very grateful that our new faculty member and former

trainee Dr. Anubha Mutneja is our new Director of Home Modalities. We have seen tremendous growth in patients choosing to pursue home modalities recently. Dr. Mutneja has many great ideas – stay tuned for some exciting developments in our home program, which is one of the largest in the country!

At Washington University School of Medicine, we have a long-standing history in the fight against kidney disease. From basic to translational and clinical research and from innovative programs to acclaimed fellowship training pathways, we are at the forefront of efforts to better understand and then develop therapeutic treatment options. We invite you learn more about our Division by attending our reception at the ASN meeting. And if you plan to attend, look for us on ASN TV. We had lots of fun videotaping our turn in the spotlight!

Ben

Benjamin D. Humphreys, MD, PhD
Joseph P. Friedman Professor and Chief
Division of Nephrology
Washington University School of Medicine

Transplant Nephrology Program

continued from page 1

tissue-typing is completed to expand their knowledge base of the processes that are so important in transplant.”

In November, Alhamad, along with Jason Wellen, MD, WU surgical director of kidney and kidney pancreas transplant, will receive an award from the National Kidney Foundation recognizing the program's outstanding outcomes and quality of patient care. The Division also has gained a national reputation for its annual Midwest Transplant Symposium, which is the only program of its kind in the country that offers workshops in HLA, transplant pathology and ultrasound in addition to clinical and research presentations pertaining to renal transplant.

On the horizon is growth in the paired kidney exchange program and the launch of a new monthly newsletter for dialysis centers as well as more educational programs for social workers and dialysis workers to encourage them to be part of the push to increase living donations. In addition, further expansion of an online referral platform that simplifies and speeds up how patients are referred for evaluation is planned.

Administrative Office

Division of Nephrology
Washington University
School of Medicine
Campus Box 8126
600 South Euclid Ave.
St. Louis, MO 63110
Phone: 314-362-8232
Fax: 314-362-8237

Consultations & Appointments:

Patient Appointments
314-362-7603
Patient referrals
800-867-3627

On the web:

Website: nephrology.wustl.edu
Twitter: twitter.com/WUNephrology
Facebook: www.facebook.com/WUNephrology

Fellowship Program:

Steven Cheng, MD
Program Director
stcheng@wustl.edu
Seth Goldberg, MD
Associate Program Director
sgoldber@wustl.edu
Tingting Li, MD
Associate Program Director
Clinical Research and Career Mentorship
tingli@wustl.edu
Rowena Delos Santos, MD
Director, Nephrology Transplant Fellowship
delosantos@wustl.edu

Thank You!

The Division of Nephrology thanks the following individuals who have generously donated to our division in the 4th and 1st quarter (April – September):

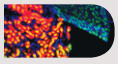
Mr. Holston Black III
Mr. Maurice Ronell Murray
Ms. Tandy Shelton
Dr. Herschel R. Harter
Dr. John E. Buerkert
Dr. Jose Rueda
Dr. & Mrs. Arvind and Dipika Garg
Ms. Brenda Kay Bingel
Patricia McKevitt

Support the Division of Nephrology

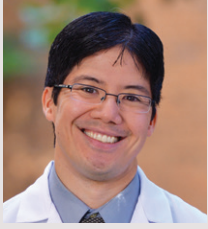
If you would like to support our research and teaching mission or contribute to the Division of Nephrology's programs and services, please send your contribution to:

Washington University in St. Louis
Office of Medical Alumni and Development
Attn: Rachel A. Hartmann
7425 Forsyth Blvd.,
Campus Box 1247
St. Louis, MO 63105

You may also contact Rachel A. Hartmann directly at 314-935-9715 or by email at rachel_hartmann@wustl.edu if you are considering supporting the Division through appreciated stocks, deferred giving, beneficiary plans or other assets.



Fellowship Notes



**By Steven Cheng, MD,
Director, Nephrology
Fellowship Program**

This year, we have committed to prioritizing elective opportunities for our fellows. As program director, I want our fellows to feel the freedom to explore different paths, strengthen areas of interest, and make decisions about future career paths based on real, meaningful experiences. In addition to the diversity of cases provided by our rich clinical services, I want our fellows to have structured time to pick elective clinics and take advantage of the rare opportunities provided by our division.

Our Division has long boasted about its diversity of talent and programs.

We have one of the most well-established home modalities programs in the nation. We have award-winning educators, an interventional nephrologist, a team that flew to Guatemala last month, two dedicated renal pathologists and one of the largest kidney transplant programs in the United States. We also have exceptional researchers in basic, translational, and clinical research.

With just two years of fellowship to experience the wide range of opportunities in our Division, fellows sometimes wish they had one more elective month to do a deeper dive into home dialysis or experience a multidisciplinary stone clinic. This year, we are doing things to ensure fellows use their elective time to maximal benefit. First, we are restructuring the clinical services to free up time, particularly in the second year, for scholarly work and elective rotations. This decision was not

made easily, but the commitment of our faculty to serve the interests of our fellows — even if it means increased work for themselves — has allowed us to implement this. Second, Tingting Li, MD, is now our first associate program director for clinical research and career mentorship. As such, she will be meeting with all of our fellows to help develop an individualized plan for scholarly work and elective experiences, tailoring their off-service time and making sure they are well equipped for their future plans.

Not all elective experiences will result in a life-changing career decision. But these elective options serve to enrich the experience of our fellows and show them just how wide and deep our field is. That's sufficient reason to keep the elective experience a priority for our fellows.

Inaugural Fellows Career Development Retreat Held

How do you successfully navigate the challenges of opening a private practice or serving as a medical director of a dialysis unit? How should you negotiate a salary? How can you better balance work and family life? These were just some of the topics discussed at the Division of Nephrology's first Career Development Retreat for fellows.

The one-day workshop, held in October, was the brainchild of Division Chief Benjamin Humphreys, MD, after he realized that fellows needed guidance on the real aspects of career pathways.

"We do an excellent job in providing great medical training and clinical experiences," he says. "But we also need to support our fellows as they transition to the real world and the business of medicine."

Tingting Li, MD, agrees. As the division's first associate program director for clinical research and career mentorship, she

was among four renal faculty who helped to launch the retreat and guide its panel discussions and lectures. Others involved were Steven Cheng, MD, Charbel Khoury, MD, and Anubha Mutneja, MD.

Fellows were able to hear from both academic and community nephrologists during the retreat. Panel discussions focused on the advantages and challenges of an academic or private practice career, the "business" side of a nephrology practice, and diversity in the workplace. A lecture by an immigration lawyer focused on challenges faced by international medical graduates and a dialysis unit medical director discussed the skills needed to serve in a business leadership role.

The entire Division supported the retreat, with attending physicians covering all inpatient rotations so that fellows would be free to attend the workshops. "I honestly



Tingting Li, MD, mentors a nephrology fellow who is considering career path options.

wish I had something like this when I was a renal fellow," says Li. "Instead, we learned on the job. It's a huge commitment on the part of the Division to offer this program, but I think it was a definite success and we plan to do this annually. It is our responsibility to not only train our fellows to be excellent nephrologists, but also equip them with necessary skills to build successful careers."

Alumni Connections

Subramaniam Pennathur, MD

Fellow in Nephrology and Transplantation, 1999-2001

Lessons learned while a nephrology and transplant fellow at Washington University School of Medicine have “profoundly influenced” Subramaniam “Sub” Pennathur, MD, as he advanced in his own academic and research careers in nephrology.

Pennathur is currently the Chief of the Division of Nephrology at the University of Michigan and the Norman Radin Chair of Nephrology Research. He also serves as Director of the Michigan O’Brien Kidney Center (one of eight O’Brien centers that focus on kidney research) and is Director of the Molecular Phenotyping and Metabolomics, Michigan Nutrition and Obesity Center (one of 12 Nutrition and Obesity Research Centers (NORC), both funded by the National Institutes of Health.

The nationally respected physician scientist says his decade of clinical and research training at Washington University inspired a lifelong passion for research. “I had the unique opportunity to pursue diabetes and nephrology research there,” he says. “My research therefore has focused on understanding the metabolic basis of diabetic complications, with particular emphasis on diabetic kidney disease. Significantly, my training in analytical mass spectrometry at the NIH-supported Resource Center at Washington University under Dr. Jay Heinecke’s mentorship enabled me to learn and utilize state-of-the-art mass

spectrometry to identify key protein and metabolite alterations in disease states.”

WU faculty mentors have included Aubrey Morrison, MBBS, and Michael Rauchman, MD, both in the Division of Nephrology, and endocrinologists Philip Cryer, MD, (former Division Chief, Endocrinology) and Clay Semenkovich, MD (current Division Chief, Endocrinology), where Pennathur also served as a fellow in endocrinology, diabetes and metabolism from 1996-1999.

“I have had many mentors at Washington University who I want to acknowledge with gratitude because they taught me the craft of being an excellent clinical nephrologist,” he adds. “Daniel Coyne was my Program Director. Dave Windus was my outpatient clinic mentor. Daniel Brennan, Will Ross, Marcos Rothstein, Jay Delmez, Steve Miller are among the many others who have had a lasting impact on my growth as a clinician.”

An introduction by Dr. Morrison to Jim Shayman, MD, the Agnes C. and Frank D. McKay Professor of Internal Medicine and Pharmacology at the University of Michigan and a former alum of the WU Nephrology Division led to Pennathur joining the faculty at the University of Michigan in 2006. Ten years later, he was named Chief of the Division Nephrology. “We found an immediate home in Michigan because of its Midwestern values, collaborative environment and commitment to excellence, which is very similar to the environment at Washington University,” explains Pennathur.

He maintains strong connections with his former WU fellows and says that his fondness for St. Louis will remain strong. “I met my



Subramaniam Pennathur, MD

wife Revathy and started our family there,” he says fondly. “Both of our daughters were born while I was a nephrology fellow.”

Family activities include lots of outdoor adventures. “Our goal is to visit all of the National Parks in the United States before I retire,” he says.

He adds, “Washington University has truly outstanding clinical and research training. It’s gratifying now as Division Chief of an outstanding nephrology program in Michigan to be able to put into practice the lessons I learned at WU in fostering research, building clinical programs and mentoring the next generation of physician scientists and clinicians.”



Pennathur, MD, with his family in Michigan.

Program Spotlight

New Director for Home Modalities Program

It's a homecoming for Anubha Mutneja, MD, a 2015 graduate of the Washington University Nephrology Fellowship Program. In July, Mutneja returned to the Division of Nephrology as the new medical director of the WU Home Modalities Program.

"My interest in home dialysis started here," she says. "Washington University has one of the largest academic home modalities programs in the nation and is a great place to train. We are planning to expand the program even further so that more patients are able to perform dialysis in their own homes."

She comes back to St. Louis after working to expand home modalities in a

private nephrology group affiliated with Iowa Methodist Medical Center in Des Moines. Her experience is critical because in July 2019, a White House executive order on Advancing American Kidney Health has a goal of having 80 percent of all new end stage renal disease patients on either home dialysis or listed for transplant. "This executive order will accelerate efforts nationwide to promote patient-centric treatment options including home dialysis," says Mutneja. "Currently only 10 percent of the more than 726,000 ESRD patients are receiving either home peritoneal dialysis or home hemodialysis."

Home dialysis not only enhances patient flexibility and quality of life, it has proven health benefits, with less risk of

infections, reduced hospitalization, and better volume and blood pressure control as compared to in-center dialysis. In the WU Home Modalities program, more than 100 patients are on home dialysis, with the majority on peritoneal dialysis.

Mutneja says the key is providing more information so that patients can make an informed decision and choose a modality that best meets their needs. "Our expert team ensures education and training such that patients can set up equipment and supplies in their own environment," she says. "It increases confidence and reduces the fear that some patients have to do their own dialysis. We also have newer technology that offers simple, audible step-by-step instructions to the patient to make it easy to complete the process."

Mutneja is pushing for at least a 50 percent increase in the number of patients on home dialysis within the next couple of years. "It's aligned with the new health initiative, but more importantly, home dialysis offers the best option for keeping patients healthier."



A patient and her husband learn the process of home hemodialysis.



Anubha Mutneja, MD

New Clinical Office Space

Fresh on the heels of creating a new, consolidated basic research area, the Division is debuting new clinical office space. "We were all over the medical center previously, in around 11 different locations," says Jodean Baldauf, senior director of business development and operations for the Division. "The new area brings the majority of our faculty and staff together, including billing and outpatient staff. It makes the workflow so much smoother and builds a sense of camaraderie within our Division."

The new area, which is located on the 8th floor of Wohl Hospital and Wohl Clinic, was fully occupied and open in late October. A prime change is that all faculty each have a window in the new space. "That's significant because 80 percent of them didn't have the opportunity to receive natural lighting in their offices previously," says Baldauf. "Natural light also reaches into all areas with staff. It's a wonderful enhancement."

More than 60 faculty and staff are now located in the new clinical office space.



The calm, light-filled surroundings just before the office move.

Research Highlights



Andreas Herrlich, MD, PhD

R01 Grant Awarded to Herrlich

Andreas Herrlich, MD, PhD, director of translational medicine in the Division of Nephrology, was awarded a five-year, \$1.45 million R01 grant from the National Institutes of Health to study the role of amphiregulin (AREG) in kidney injury, repair and fibrosis. AREG, a known epidermal growth factor receptor, has previously been implicated in the devel-

opment of kidney fibrosis. Herrlich's lab already has identified kidney proximal tubule cells as the cellular source of profibrotic EGFR ligands, including AREG, in kidney injury. Ongoing laboratory research will determine if soluble AREG is necessary for development of kidney fibrosis and whether it has roles in early recovery and repair.

Pediatric Disease Mouse Models Core Established

Jeffrey Miner, PhD, is the recipient of a three-year, \$449,500 grant from the Children's Discovery Institute (CDI). The grant will fund the new Pediatric Disease Mouse Models Core (PDMMC) at Washington University School of Medicine. "The goal of this core is to enable CDI investigators to produce the gene-edited mice they need for cutting edge pediatric disease research, while also providing scientific expertise and removing

financial barriers," says Miner, who serves as the core's principal investigator. CDI is a funding partnership between the School and St. Louis Children's Hospital to support innovative pediatric diseases research.



Jeffrey Miner, PhD, FASN

Second Chan-Zuckerberg Grant Awarded to Humphreys

Benjamin Humphreys, MD, PhD, the Joseph Friedman Professor of Renal Diseases in Medicine and Chief of the Division of Nephrology, has received a three-year Chan Zuckerberg Initiative (CZI) grant for research that will define the normal

developing and adult human kidney transcriptome and epigenome at cellular resolution and benchmark human kidney organoid cell types against this dataset. The research is a collaborative effort between Humphreys, Washington University

developmental biologist Bo Zhang, PhD, and colleagues at Brigham and Women's Hospital and the University of Southern California. This is the second CZI grant awarded to Humphreys. The first, in 2017, was part of the Human Cell Atlas project, a large-scale effort to map every cell type in the human body. In that initiative, Humphreys focused on identifying all cell types of the human kidney using single-cell RNA sequencing. The Chan-Zuckerberg Initiative, founded by Facebook CEO Mark Zuckerberg and his wife, Priscilla Chan, MD, has a goal of helping scientists cure, manage or prevent all disease by the end of the century.



Monica Chang-Panesso, MD; former division researcher Yoichiro Ikeda, MD, PhD; and Division Chief Benjamin Humphreys, MD, PhD, discuss ongoing research funded in part by a Chan-Zuckerberg Initiative grant.

Faculty News and Awards

Rauchman Honored with Endowed Professorship

Michael Rauchman, MD, was installed as the Chromalloy Professor of Renal Diseases in Medicine. A celebration of the endowed professorship was held in October. Rauchman, who also serves as the renal section chief at the John Cochran VA Medical Center in St. Louis, is a renowned renal diseases researcher, specifically exploring the molecular and genetic basis of abnormal kidney development. He is the recipient of numerous grants, including an R01 grant from the

National Institute of Diabetes and Digestive and Kidney Disorders (NIDDK). He also serves as principal investigator of a VA Cooperative Study called the Million Veteran Program. “Dr. Rauchman is an outstanding physician-scientist and valued new member of our division,” notes Benjamin Humphreys, MD, PhD, Chief of the Division of Nephrology. “I particularly appreciate his critical mentorship for our fellows and junior faculty, and I am grateful that we could celebrate his accomplishments together last month at his installation.”



Michael Rauchman, MD



Medal honoring Chromalloy Professor of Renal Diseases

Reinventing Medical School Curriculum

Steven Cheng, MD, program director of the Nephrology Fellowship Program, and **Timothy Yau, MD**, are among several faculty at Washington University School of Medicine who have



Timothy Yau, MD, and Steven Cheng, MD

been appointed to help re-design curriculum for students entering the medical school. Cheng is part of the Basic-Clinical Sciences Integration Team and Yau was appointed to the Clinical Skills/Immersion team. The two already are considered leaders in

medical education, having both received multiple awards, including the Samuel R. Goldstein Leadership Award for Medical Student Education, one of the highest honors for faculty educators. Cheng also serves as the course director for the renal pathophysiology course. Yau is the Social Media Editor for the American Journal Of Kidney Disease and is on the faculty of the Nephrology Social Media Collective.

WU Establishes Academy of Educators

Four faculty members from the Division of Nephrology have been selected as fellows for the newly established Washington University Academy of Educators. **Benjamin Humphreys, MD, PhD**; **Steven Cheng, MD**; **Timothy Yau, MD**; and **Patricia Kao, MD**, are part of a



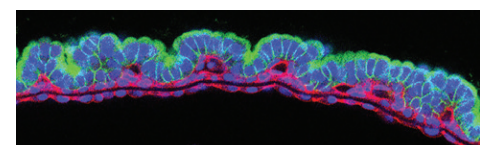
group of educators whose goal is to train other faculty in new, innovative and inspiring ways so that they can successfully teach in a dynamic academic medical setting.

Already a Teaching Scholars Program has been launched through the academy to help faculty learn more about curriculum design, assessment methods and leadership. A new certificate program called Foundations in Teaching Skills is starting this fall for young instructors who are one to three years out of medical training.

2020 ASMB Meeting To Be Held in St. Louis

Jeffrey Miner, PhD, is the Meeting Chair for the American Society for Matrix Biology's next biennial meeting, “ASMB 2020: The Matrix in Focus.” The meeting will bring an expected 350 extracellular matrix

biologists to St. Louis in November 2020 to share and advance knowledge about how extracellular matrix proteins impact diverse aspects of human health and disease. There also will be mentoring sessions for junior investigators and trainee-led Special Interest Sessions. For more information, visit asmb.net.



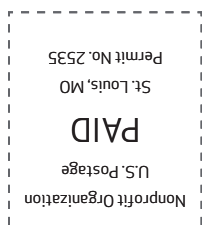
Smile — We're On Camera!

Are you going to the ASN Meeting in Washington, D.C. in November? If so, look for us on ASN TV talking about our Division and the fellowship training program. As many of you know, we have one of the most comprehensive nephrology fellowships in the country and our graduates are pursuing rewarding private practice careers, continuing transformative research projects and leading academic nephrology programs.

We hope you have a chance to watch our program. We definitely had a lot of fun making it and spotlighting the best our Division has to offer.



Tingting Li, MD, associate program director for clinical research and career mentorship, takes a turn in the spotlight for ASN TV.



Washington University School of Medicine
Division of Nephrology
Campus Box 8126
600 South Euclid Avenue
St. Louis, MO 63110
Phone: 314.362.8233
Fax: 314.362.8237

SCHOOL OF MEDICINE
Washington University in St. Louis 