After implementing an intensive communications and support program for dialysis patients just prior to their discharge from the hospital, the Division of Nephrology at Washington University School of Medicine has seen a steady decline in the number of hospital readmissions among this critical population of patients.

“What we have seen in just the first two months of 2019 has been a 15 percent readmission rate, which is significant because in past years, our readmission rate has ranged from 24 percent to as high as 40 percent,” says WU nephrologist Frank O’Brien, MD.

Hospital readmission rates for dialysis patients across the United States account for up to 40 percent of all Medicare costs, and this contributes significantly to the estimated $20 billion that is spent on readmissions annually. In 2017, approximately 39 percent of dialysis patients were readmitted to the hospital within 30 days of discharge. That same year, in an effort to control rising costs, the Centers for Medicare and Medicaid Services linked its reimbursement rates to outpatient dialysis centers to defined clinical care criteria and readmissions benchmarks.

With a grant from the Barnes-Jewish Hospital Foundation, the division created a new position — a transitional care nurse — whose sole responsibility was to help transition the care of a dialysis patient from the hospital to outpatient dialysis centers and a primary care physician (PCP). Responsibilities included reviewing medications and physician discharge instructions as well as finding and scheduling the PCP follow-up visit. The transitional care nurse also arranged for transportation if needed and reminded patients of their upcoming appointments.

“It’s a cultural shift in how we approach caring for our patients throughout the continuum of care because we make a concerted effort to see patients within two days of discharge,” says O’Brien. “The results so far show that the use of a dedicated transitional care nurse has a big impact on care compliance and reduced readmissions.”

In addition, the division began tracking patient statistics daily. O’Brien also instituted a monthly multidisciplinary roundtable discussion between nephrologists, dialysis center managers, social workers and dietitians to discuss the causes of each readmission to see if more intensive follow-up and communication were needed.

O’Brien presented early results of the Division’s efforts at the Society of Nephrology annual meeting last October. Readmission rates began declining significantly in 2017 and have continued to drop.

In addition, 65 percent of dialysis patients in the first nine months of 2018 saw a primary care doctor after discharge — up from less than 20 percent the previous year — and 78 percent saw their outpatient nephrologist within one week of discharge.

“The take-away from our efforts is for dialysis centers to focus on soon-to-be discharged patients, both those who will be transitioning to outpatient centers and those who will continue on home dialysis,” he emphasizes. “We are notified by the inpatient staff and swoop in early before patients leave the hospital so that we can support them as they transition to their PCPs and continue outpatient dialysis.”

Ideally, O’Brien says, a dedicated transitional care nurse should be assigned to every dialysis unit. “Yes, it’s an investment to support this role and it takes a lot of work, time and effort by the inpatient dialysis teams to notify us,” he says, “but we save on overall healthcare costs and, more importantly, quality of care is so much better when patients can remain as healthy as possible.”
Message from the Chief

At long last, we have completed our move into our new research facility. The space is critically needed to upgrade older laboratories, enhance collaborative efforts between basic and translational researchers, and share equipment and other resources among all researchers and staff. I’m sure that the move will further our efforts to better understand and develop treatments for kidney diseases. Among our efforts are projects focusing on acute kidney injury, polycystic kidney disease, tubular cell function and injury, kidney fibrosis, and kidney stem cells and organoids.

Our faculty have been the recipients of several significant grants to further their research. Jeffrey Miner, PhD, is a co-recipient of a Children’s Discovery Institute Interdisciplinary Research Initiative Grant to find new approaches for the treatment of pediatric kidney disease. He is collaborating with Jonathan Barnes, PhD, in WU’s Division of Chemistry and, together, they will focus on improving existing nanomaterial drug delivery systems to better target drug delivery to the kidney. Maggie Chen, MD, PhD, and co-inventor Yeawon Kim were issued a U.S. patent for their discovery of noninvasive biomarkers that could aid in the diagnosis of certain human kidney diseases in their earliest stages. And my lab has been creating and evaluating different protocols to grow kidney organoids from human stem cells using single-cell RNA sequencing and single-nucleus RNA sequencing. It’s exciting to see all of the research under way.

I also have focused much of our division’s efforts toward continuous improvements in quality care practices. As you can see from our lead story, our latest effort has resulted in a significant drop in hospital readmissions among our dialysis patients. It takes hard work and commitment on the part of our physicians, nurses and staff to achieve these results and I’m proud of their collaborative efforts to tackle difficult issues facing a challenging patient population.

I want to highlight the story on the Nephrology Social Media Collective. This is an exciting effort to keep nephrologists worldwide connected and engaged and I’m thrilled that some of our fellows, researchers and alumni are involved. I hope you stay connected through Twitter (@WUNephrology) or whatever communication mode you prefer and share with us your career updates and research news.

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

Thank You!

The Division of Nephrology thanks the following individuals who have generously donated to our division in the 1Q of 2019:

- Dr. Raymond Bass
- Dr. John E. Buerkert
- Dr. Arvind Garg
- Mrs. Kimberly Laine Knolhoff
- Ms. Debra A. Lane
- Ms. Patricia M. McKevitt
- Dr. John Mellas
- Dr. Thomas Ralph Pohlman
- Dr. Didier Portilla
- Mr. & Mrs. Terrance Dwaine and Karen Lee Sell
- Dr. Eduardo Slatopolsky
- Dr. Richard Villalobos

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.
Welcome New Fellows!

We had a stellar match for the fellows who join our division in July. And we have to say, they bring with them a diverse background of experience, dedication and fun!

Gonzalo Matzumura, MD
Medical: Universidad Peruana Cayetano Heredia Facultad de Medicina
Residency: University of Texas Health Science Center, Houston, TX

Fun facts: 3-time Peruvian Youth National Champion in Javelin throw (2004–2006) and served as a volunteer physician at a shelter in Lima for vulnerable teenage mothers and their children.

Maggie Meier, MD
Medical: Ross University School of Medicine, Portsmouth, Dominica
Residency: St. Luke’s Hospital, Chesterfield, MO.

Fun facts: An avid runner, she holds an undergraduate degree in exercise science and served as a mission trip volunteer providing healthcare to the Kalingo Tribe in Dominica.

Mustafa Muhammad, MD
Medical: Shifa College of Medicine in Pakistan
Residency: Greater Baltimore Medical Center in Towson, MD

Fun facts: A continuing education fan, he enrolls in certified courses on Coursera, loves the sport of cricket and completed an elective course in ICU at the National Institute of Health in Bethesda, MD

Blessing Osondu, MD
Medical: Lugansk State Medical University in Ukraine
Residency: Atlanticare Regional Medical Center, Atlantic City, NJ

Fun facts: She has lived in five countries — Nigeria, Thailand, South Korea, Ukraine and the U.S. — and while in residency has been mentoring elementary and high school students at a school in Atlantic City.

Sana Javeed Shaikh, MD
Medical: B.J. Medical College in Pune, India
Residency: SSM Health St. Mary’s Hospital, St. Louis, MO

Fun facts: She speaks five languages — English, Hindi, Marathi, French and Urdu — and was a former visiting resident in our Division of Nephrology, rotating through the inpatient general nephrology service and the inpatient renal transplant service.

Read more about our new fellows at https://nephrology.wustl.edu/2019-nephrology-fellowship-match-announced/
Laura Hesemann, MD

Vice Chief of Staff
Vice Chair for Clinical Affairs,
Department of Child Health
Clinical Director,
Plasmapheresis Service
Division Director of
Pediatric Nephrology, &
Medical Director of Acute Dialysis
MU Health Care

Nephrology Fellow, 2011-2015

For Laura Hesemann, MD, the Washington University Division of Nephrology’s training program had “the best combination of clinical and research activities to give a complete education...and offered all of this while in a friendly Midwestern city.”

Hesemann, a graduate of the program in 2015, now works in Columbia, Mo., holding multiple leadership positions for MU Health Care, the academic healthcare system for the University of Missouri. It is a homecoming of sorts, returning to Mizzou, as she earned her medical degree and completed her internal medicine and pediatrics residencies at the University of Missouri School of Medicine. She then moved to St. Louis to complete fellowship training in nephrology and pediatric nephrology and enroll in the Mentored Training Program in Clinical Investigation (MTPCI) as a research scholar at Washington University School of Medicine.

Related to her nephrology training, Hesemann notes, “There is no substitute for volume when it comes to practical education. While the large clinical loads seemed daunting, the number and breadth of patients and pathologies provided wonderful training while I was in St. Louis.”

What she remembers most about her fellowship and the MTPCI program were her faculty mentors. “The thing I remember most is the sense of respect and commitment,” she says. “The faculty all were focused on fellows’ education and were committed to teaching. They were tough, with high expectations, but always respectful.”

She worked hard to gain her mentors’ respect and recalls “celebrating” with a co-fellow in the clinic after working with professor David Windus, MD, HS, who has been the recipient of several Distinguished Service Teaching Awards from the university’s medical students. Says Hesemann with a laugh, “With his firm demeanor and rare congratulations, anytime Dr. Windus muttered a ‘good job’ or ‘that’s smart,’ we would high-five each other — to which he would just shake his head!”

Near the end of her fellowship, Hesemann told faculty member Daniel Coyne, MD, how much she appreciated his positive evaluation because she really respected his teaching and expertise. “His reply, perfectly in keeping with all that he is, was ‘Of course you function at the level of a well-trained attending. I trained you.’ He smirked and walked away. I still smile about that!”

Hesemann, who now also serves as MU School of Medicine’s Vice Chair for Clinical Affairs for the Department of Child Health, Vice Chief of Staff and Chair of the Peer Review Committee in addition to her clinical leadership roles, says she is drawn to building programs designed to enhance patient care. “Creating an independent pediatric dialysis program as well as a plasmapheresis program that serves all MU Health Care facilities has increased patient access to these services and improved the quality and efficiency of care. Direct patient care remains my first love, but working to build teams and programs that will positively impact more patients than I ever could reach is truly fulfilling.”

As for fun, she and her husband, Nathan (an ophthalmologist who has a private practice and is chief of eye services at Harry S. Truman VA Hospital in Columbia), have three daughters and a menagerie. “We have a dog, 12 chickens and several hundred goldfish,” she says. “And yes, there are frequent and dramatic pleas from the children (and my husband!) for cattle and horses. There’s never a dull moment!”
A-Level Status for ISN Sister Renal Center Partnership in Guatemala

A scientific and educational partnership between the Division of Nephrology at Washington University School of Medicine and the Guatemala Social Security Institute (IGSS)’s Renal Division has been upgraded to Level A status by the International Society of Nephrology (ISN). IGSS is the government branch that oversees hospital and clinical services in Guatemala.

Level A is the highest level attainable in the ISN’s Sister Renal Center Program (SRS), which connects renal programs or centers in emerging countries with centers of excellence in developed countries. Less than 10 partnerships worldwide currently are designated as Level A partnerships.

“This is a highly competitive program and only the most promising and sustainable partnerships get the chance to move to the next level,” says Marcos Rothstein, MD, who leads the partnership at Washington University together with Vicente Sanches Polo, MD at IGSS in Guatemala.

Washington University became an SRS partner in 2015 at the introductory Level C. Successful partnerships are anticipated to last six years. Because significant training and research efforts have been under way, the partnership was upgraded to Level B in 2017. To date, Rothstein has traveled to Guatemala six times, with 10 additional faculty members participating in the program at varying times. Five senior renal fellows from Guatemala also have traveled to St. Louis for advanced training.

Through the program, researchers, residents, fellows and staff from the two institutions have been studying an emerging mystery illness called MesoAmerican Nephropathy (MeN) that has caused an epidemic of chronic kidney disease in Latin America. Guatemala also has high incidences of diabetes and cardiovascular disease, which are tied to high rates of advanced kidney disease in the country. According to the ISN, kidney disease accounts for more than one million deaths annually in emerging countries. By supporting partnerships that focus on education, prevention, collaboration and training, the ISN hopes to enhance care of kidney diseases worldwide.

Says Rothstein, “Over the next two years we plan to expand our education mission and increase the visits of Guatemalan fellows to Washington University for clinical rotations. We also will continue our support of ongoing research and maintain an annual symposium, which brings our division faculty to Guatemala for the purpose of updating renal knowledge and education for the nephrology community there. Lastly, we are assisting kidney care in Guatemala by providing supplies and expertise in the care of dialysis access/permanent tunneled catheters for a community in high need of those resources.”

He adds, “It’s been a tremendously important and rewarding partnership for both sides.”

Interventional Nephrology Training Now Part of Fellowship

With the opening of a new Interventional Nephrology Clinic in west St. Louis County last fall, the Division of Nephrology now is adding interventional nephrology as an elective rotation in the fellowship program.

“There are only about 20 programs in the country that offer this type of training as part of the fellowship, so not many do,” says James Davis, MD, FACP, FASN, who oversees the clinical training.

Davis has been an interventional nephrology specialist for more than 15 years. Prior to joining the Division last year, he was in private practice in Cincinnati, OH, where his practice oversaw the largest and busiest outpatient vascular access center in the country, handling more than 4,500 cases annually.

“I will provide one-to-one mentoring for every fellow that is interested in pursuing this subspecialty,” he says. “Nephrology doesn’t always have trainees who want to do procedures. You have to be procedurally oriented and have the desire to understand what makes an access work and how to diagnose the root cause when it doesn’t work.”

Interventional nephrology has been a slow growing subspecialty for several years, primarily because vascular access issues were — and still are — taken care of by interventional radiologists. Because nephrologists are more focused on the insertion and maintenance of dialysis catheters as well as upkeep of grafts and fistulas, interventional nephrology has become a more critical subspecialty for training.

Last fall, the Division partnered with St. Luke’s Vascular Access Center in west St. Louis County to offer interventional procedures. “Our goal is to have the fellows who are interested become certified to perform these types of procedures through the American Society of Diagnostic and Interventional Nephrology,” says Davis. “It expands their expertise and skill set and opens up additional career paths after fellowship.”
It’s Open! New Nephrology Research Center Debuts

Eight principal investigators as well as junior and clinical research faculty in the Division of Nephrology are now working on a single floor in the McDonnell Medical Sciences Building. Planning and construction took more than a year to complete. The shared lab space is an open-concept design, which fosters collaboration and the sharing of expertise and equipment. “Together we can utilize a microscopy suite, a mouse surgery suite, a histology room, and four cell and kidney organoid culture rooms,” says Jeffrey Miner, PhD, FASN, director of the division’s basic research program. “We moved into the space in late March and we are now back to work on a wide range of research projects to better understand the mechanisms of kidney diseases.”

New Home for Kidney Translational Research Center, Too!

Also moving to new space within the McDonnell Medical Sciences Building is the Kidney Translational Research Center, a core research facility on the medical school campus. The facility serves as a repository of both clinical data and bio-specimens and assists in planning various research efforts. “Investigators are exploring the spectrum of genetic mutations, gene expression and cell-type diversity and identifying new biomarkers of cystic kidney diseases, congenital kidney and urinary tract malformations (CAKUT), kidney cancer, proteinuria, hematuria, hypertension, diabetes and diseases in kidney transplant patients,” says KTRC director Sanjay Jain, MD, PhD. “We also are investigating the roles that environmental toxicants or perturbed metabolic states may play in acute and chronic kidney injury and support the ReBuilding a Kidney Consortium (RBK) for studies in induced Pluripotent Cells (iPSC).”

Using KTRC specimens and data, investigators are successfully applying innovative cutting edge technologies in whole genome and exome sequencing, single cell/nucleus sequencing, proteomics, metabolomics and 3D high resolution imaging of healthy and diseased human kidneys. Major research initiatives include the Kidney Precision Medicine Project (KPMP), Human Biomolecular Molecular Atlas Project (HuBMAP), Chan Zuckerberg Initiative, Clinical Trials and Organ Transplantation (CTOT) and CureGN. The KTRC currently is seeking to increase the geographical diversity of samples to include countries outside of the United States. Research is funded by the division and with extramural and intramural grants. For more information about the KTRC, visit https://research.wustl.edu/core-facilities/ktrc/ and Sanjay Jain, MD, PhD, in the new Kidney Translational Research Center.

2019 Translational Innovation Grant Awarded

The Division of Nephrology has awarded a $50,000 grant to Eirini Kefalogianni, PhD, and Charbel C. Khoury, MD, to further research and determine whether circulating TNFR1/2 levels are causally related to and have immunomodulatory effects on disease activity or progression.

Their study, titled Circulating immune cell types in diabetic nephropathy and their regulation by circulating TNFR1/2, will be the first to characterize the forms and functions of circulating TNFR1/2 in diabetic nephropathy and test their effects on circulating immune cells with regard to surface receptor and cytokine expression profiles. Circulating levels of Tumor-Necrosis-Factor-Receptors 1 and 2 (TNFR1/2) are important correlative markers in kidney disease. TNFR1/2 levels are very strong predictors of the progression to end-stage renal disease in type 2 diabetes patients and can predict stage 3 chronic kidney disease in type 1 diabetes. TNFR1/2 levels also are associated with early glomerular lesions and predict heart failure risk in type 2 diabetes, and are associated with disease severity in other causes of chronic kidney disease.

“We expect this study to set the foundation for a broad line of translational investigation, to stimulate mechanistic basic research in the field of kidney and inflammatory diseases and, possibly, identify components of the TNFR1/2 pathways as targets for diabetic nephropathy and other chronic kidney diseases,” says Kefalogianni.

The division’s Translational Innovation Grant program began in 2015 as a way to bring together a basic scientist and a clinician within the division to collaborate on a translational research project.
Marcos Rothstein, MD, has received the 2019 Core Value Award for Service Excellence from DaVita Kidney Care, one of the leading providers of kidney care services in the United States. The award is given annually to a nephrologist who demonstrates the highest level of care, compassion and understanding of the needs of patients and/or medical providers. The award is the second for Rothstein over the past year. He also received the Dr. Neville Grant Award for Clinical Excellence, which is given to a WU physician who exemplifies compassion and excellence in clinical care.

Timothy Yau, MD, was recognized with a 2019 Samuel R. Goldstein Leadership Award in Medical Student Education by Washington University School of Medicine. The Goldstein awards, which are one of the highest honors given to educators at the university, recognize outstanding teaching and a strong commitment to medical education. Yau is the recipient of seven Distinguished Service Teaching Awards since joining the faculty in 2011. He started the Nephrology Web Video Series online and is the Social Media Editor for the American Journal of Kidney Disease.

Let’s Be Social! Nephrology Social Media Collective Internships

“It’s big, it’s international, and it’s going to be amazing!” That statement, from the Nephrology Social Media Collective, sums up what some members of the 2019 NSMC internship class are saying about being part of a wide range of nephrology social media projects, including #NephJC, NephMadness, Renal Fellow Network, NephSim, and GlomCon.

The NSMC internship focuses on giving nephrology health care professionals the tools and training they need to communicate via social media. The hope is to “cultivate leaders in medicine by instilling confidence, knowledge, competence and professionalism in the newer forms of communication.” NSMC received more than 100 applications this year. Of the 42 interns announced for the one-year program in 2019, three are affiliated with Washington University’s Division of Nephrology: Madhuri Ramakrishnan, MD, a first-year nephrology fellow; Yasar Caliskan, MD, a visiting researcher in the laboratory of Sanjay Jain, MD; and Sambhavi “Sam” Krishnamoorthy, MD, a former nephrology fellow.

“NSMC is a group of nephrologists who are building and growing an online community geared towards education and collaboration,” says Krishnamoorthy. “It is designed to connect nephrologists all around the world, hopefully amplifying progress in nephrology by improving the exchange of ideas — and having a lot of fun at the same time!”

Popularity for the Collective has grown steadily over the past several years, with program directors noting that “in a fit of insanity,” they more than doubled the number of internships two years ago. All interns are required to have a Twitter account and are expected to contribute several hours each month for NSMC internship-related activities.

“We go to conferences and meetings to engage with leaders in our field, learn about the latest developments and research and expand our horizons,” says Ramakrishnan. “Now imagine being able to have that kind of experience almost every day - that is what NephTwitter, and nephrology social media as a whole allow for, and NSMC is a way of initiating us newbies in social media into this amazing world.

For Krishnamoorthy, she says the internship will help her gain more confidence to engage in the conversation rather than be a passive spectator. “I’m not a big fan of social media in reality (Surprise!),” she says. “But nephTwitter has been the one exception as it has been a very positive experience. I think this internship is a great opportunity to really understand and utilize social media like it’s supposed to be used.”

On Twitter, follow Drs. Ramakrishnan @MadMagicDoc, Caliskan @yasar_caliskan, and Krishnamoorthy @beans_sam, as well as the NSMC @NSMCInternship.
Nephrologists Just Wanna Have Fun!

Division chief Ben Humphreys, MD, PhD, simply describes the recent division holiday party as “quite the rager!” About 150 faculty, staff, fellows and their spouses listened to live music by the Midnight Piano Band and danced the night away. Almost everyone took the opportunity to have fun in our photo booth, too!

Did we see Eduardo Slatopolsky, MD, putting all the rest of us to shame on the dance floor? Did we have a rare unicorn sighting? Yes, yes we did!

“We work hard, but we definitely are a group that has a great time working and having fun together!” says Humphreys.