

WU Technology Improves Dialysis Care Seeking Alumni to Continue Testing Epharmix Messaging Platform

an a simple text or an automated phone call dramatically reduce the number of missed dialysis appointments and hospitalizations due to renal complications? The answer, amazingly, is 'yes,' thanks to an innovative message-based technology platform developed by Washington University students.

"I was shocked that something so simple could have such a profound result," says nephrologist Will Ross, MD, MPH, who served as principal investigator of a six-month pilot project in Washington University's Chromalloy American Kidney Center last year. "I expected a modest response, but we actually saw a 75 percent decline in the median number of missed appointments. We also saw an approximately 50 percent reduction in the number of patients who had to be hospitalized during that same timeframe."

The results came after the dialysis center began using EpxDialysis, a simple but highly effective automated message system that combines proactive, friendly appointment reminders with immediate one-button, toll-free phone access to reschedule appointments or discuss any health concerns with their dialysis team.

"Dialysis patients come to the clinic, on average, 13 times a month. It's like a parttime job with no weekends or holidays off and adherence is hard," says Avik Som, a WU MD/PhD student and co-founder of Epharmix, who led a team to develop EpxDialysis.



Som is the founder of IDEA Labs, a bioengineering design incubator on campus that already has resulted in multiple inventions moving toward commercialization. In 2012, he focused teams of students in clinics to identify and remove barriers to better care and health outcomes. Epharmix, the simple automated messaging system, grew out of that and now is being tested in 15 different clinical settings, including dialysis, where the system is customized and called EpxDialysis.

"It worked phenomenally well for many of the patients enrolled in the pilot project," says Brenda Bingel, RN, MSN, manager of the Chromalloy American Kidney Center. "We have one patient who is especially enthusiastic. Before, her adherence rate would not let her be a candidate for transplant, but now she is. It's because the messages are carefully crafted to convey the essence of caring and the fact that we are their partners in keeping them healthy."

MD/PhD student Avik Som with dialysis patient Karen Harrold and nephrologist Will Ross, MD, MPH, in the WU Chromalloy American Kidney Center.

The technology already is proving to be remarkably transferrable to other disease categories that have patient treatment issues, such as COPD. It also has demonstrated cost and operational benefits. Explains Som, "The system is always on time. You don't need a large staff to implement this and you reduce the dollars that could be lost by having an unused dialysis station."

With great outcomes already, Epharmix has attracted substantial investment from leading venture capitalists in St. Louis and San Francisco. It's now under further evaluation at other health systems.

"This remarkable technology needs to be validated in other units," Ross says. "We would love it if alumni would evaluate this in their own institutions. We think the technology could be a new standard of care practice and we are eager to share this."

Message from the Chief



It has been a very busy fall and winter in the Division of Nephrology. We have hosted a number of visiting professors, including Larry Beck MD, PhD; Barry Freedman MD; Andreas Herrlich MD, PhD; Shuta Ishibe MD, PhD; and Sanjeev Kumar MD. At the American Society of Nephrology Annual Meeting in San Diego, it was wonderful to see many alumni and friends at our reception.

We also have introduced a number of new academic initiatives. Tim Yau, MD, is directing our CME-accredited course, "Nephrology Update for the Primary Care Provider." Enrollment has exceeded our expectations. On the fellowship side, we are redesigning some of our inpatient consult rotations with the goal of ensuring that all fellows have enough time to read about cases they see, even during busy months. To this end, we have instituted a new 'cap' of 20 patients per fellow and extended the call cycle to one in six from one in four nights. These changes have been well received by our outstanding fellows. Finally, the two Paul Mennes MD, Memorial City-Wide Renal Rounds held so far have been very well attended and serve as a collegial setting for colleagues from Washington University, St. Louis University and private practices around St. Louis to catch up and discuss topics in nephrology.

As we go to press, I am particularly excited for our upcoming celebration of the career of Eduardo Slatopolsky, MD, "Chronic Kidney Disease and Metabolic Bone Disease: Past, Present and Future." This is sure to be a memorable event. Finally, I wish to thank our donors whose contributions allow us to send fellows to national meetings as well as enable us to bring in accomplished visiting speakers and advance the training of the next generation of nephrologists.

I hope you will continue to keep us updated on your career paths. We are always interested in hearing from alumni who continue to excel in clinical care, practice, and research.



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

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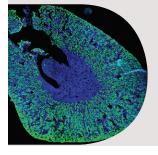
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Fellowship Notes



Seth Goldberg, MD Associate Director, Nephrology Fellowship Program

As we enter the new year, we are eagerly anticipating a number of changes to further improve the clinical training for our Nephrology fellows. As a center

of excellence in a number of subspecialties within Nephrology, our institution provides fellows with multiple opportunities to gain unique experiences in managing polycystic kidney disease and nephrotic syndromes in clinics especially designed to treat these patients. Furthermore, the establishment and growth of multidisciplinary clinics in lupus and nephrolithiasis will allow our fellows to work alongside our faculty and in conjunction with colleagues in Rheumatology and Urology, respectively, in these outpatient settings. While our peritoneal dialysis clinic remains one of the largest in the country,

continued growth of our home-hemodialysis program exemplifies our commitment to preparing fellows for the changing landscape that characterizes the future of the field of Nephrology.

Meanwhile, efforts to restructure the inpatient consult service are also expected to bring about positive changes in trainee education while maintaining a favorable work-lifestyle balance. The call schedule for on-service fellows has recently changed from being on-call every fourth night to a call schedule approximating every sixth night. Also, the creation of a third attending-fellow consult team will ensure that each team's census remains within a range that is most conducive to learning and to maximize educational opportunities.

Importantly, these changes are taking place without compromising the time spent on research when off-service. Each trainee will have four months of time devoted to such scholarly activities during the first year of training and eight months during the second year. With a full complement of five fellows joining the training program in July, we have maintained flexibility in the training schedule to allow for individualization, tailored to each fellow's specific career goals.

Nephrology Professor A YouTube Sensation!



Capitalizing on the popularity and widespread accessibility of YouTube, Assistant Professor

Timothy Yau, MD, is creating a series of web videos designed to showcase renal pathology to clinical trainees.

"The project actually stemmed from a hobby of mine, which is video games," says Yau. "I have always enjoyed video games since childhood but, over the past five years, streaming video technology has really enhanced the experience. I wanted to use a similar streaming video format to create high quality educational content so that the information is available to more people around the world." The new educational initiative has garnered over a thousand views since its rollout in December. The first video case presentation included a discussion of nephrotic syndrome with Joseph Gaut, MD, PhD, assistant professor of pathology and immunology and head of Washington University's nephropathology section, and second-year fellow Rajesh Rajan, MD. Several more videos have since been uploaded.

"Response has been overwhelmingly positive and our YouTube channel has been endorsed by the major nephrology blogs," says Yau. "I have received emails and Twitter postings from fellows all over the world asking me when the next videos will be out."

"Just wanted to let you know that your videos are extremely helpful and full of pearls," posted M. Azfar Q., MD, from the College of Physicians & Surgeons of Pakistan. And Aria Mahtabfar, a medical student at Rutgers Medical School, wrote, "Just wanted to let you know that I am in the middle of my renal block, and have come across your videos. Your cases, discussions with Dr. Gaut and the fellows are absolutely fantastic. This may sound selfish of me, but PLEASE do more topics before my exam next week!"

In February, the video featured renal fellows playing a version of Medical Jeopardy. Yau hopes to produce one new video a month. In addition to renal histology, Yau plans to include board review and CPCs.

To subscribe to the YouTube channel, search for *Washington University in St. Louis Renal Pathology Teaching Series*



Alumni Connections

Jerome Tannenbaum, MD, PhD

Nephrology Fellow '81–'82;Chairman/ CEO, Sanderling Renal Services-USA

Dr. Jerome Tannenbaum hasn't taken your typical career path. A passionate clinician who previously had vibrant pri-



Jerome Tannenbaum, MD, PhD

vate practices in Dallas and Nashville while also on the faculty of Southwestern Medical School and Vanderbilt University School of Medicine, Tannenbaum transitioned into business and entrepreneurial roles to improve the delivery of care to dialysis patients.

"In 1985, there was only one dialysis provider in the Nashville area," he says. "The equipment was outdated, the clinic was depressing and very few people asked patients what would make their experience more pleasant." Tannenbaum and his partners surveyed patients to see what they wanted. "There were issues we never thought of — the loneliness of sitting in a dialysis chair or the lack of windows in dialysis clinics at the time. When we decided to build our own clinics, we added phones at each dialysis station and made sure that there were daylight and windows available. This is ubiquitous in healthcare facility design today, but back then, few people thought about it."

Patients living in rural communities had long and difficult commutes to dialysis centers and many elected to stay home and not receive care. Tannenbaum chose to build smaller clinics closer to his patients and utilize his electronic medical record (EMR) system to monitor their care from his Nashville office. He pioneered the use of EMR years before federal government mandates and created a software development company that offered PEARL[™], one of the first EMR solutions. His latest venture, Sanderling Renal Services-USA, provides renal telemedicine services and dialysis to rural hospitals and communities 24 hours a day. "This helps avoid the transfer of patients from their community to a tertiary facility that may be hours away," he says. "Being able to immediately initiate emergency dialysis in the patient's home community can have a huge impact on patient outcomes."

Reflecting upon his training here, Tannenbaum recalls an intellectually stimulating environment with particularly memorable rounds with Herschel Harter in the Chromalloy Kidney Center. While conducting experiments on the influence of omega 3 fatty acids on transplant rejection, he admits to arranging for free shipments of gallon jugs of Menhaden oil. "The jugs would arrive from Europe every other week," he says. "We ended the experiments after six months, but the jugs kept coming, no matter how many times I tried to cancel them. I think it was a year after I left that someone else figured out how to stop the shipments!"

On his career, Tannenbaum notes, "It wasn't the business of medicine that propelled me to become an entrepreneur. It was a desire to do a better job caring for my patients."

Lynn Wesselmann Retires





As many of you know, Lynn Wesselmann, our division's Research Administrator and an indispensible administrative assistant, has been a steady presence here and at Barnes-Jewish Hospital for 40 years.

"I started at Barnes Hospital doing OR scheduling," she says. "I was recruited to the Department of Internal Medicine to be the data manager for a hepatitis C research project. When that researcher left, I became the administrative assistant for Dr. Marc Hammerman, who was in charge of the residency program at the time. When he became chief of the renal division in 1991, I followed him and have been with the division ever since."

Hammerman, an endocrinologist who served as chief until his retirement in 2015, says, "Lynn and I clicked immediately and shared a common

mind and ethic. Given my non-nephrologic background, I knew heading the renal division would be a challenge. I would have passed had I not known that Lynn would be there to support my efforts. Over the years, I came to rely on her advice and judgment, which were always on target."

Lynn is retiring in June. She laughs at some of her memories of faculty and trainees, including the time when a doctor didn't start writing an NIH grant application until the day it was due. "He had to take it by plane to Maryland to make the deadline," she says.

Clay Semenkovich, MD, Chief of Endocrinology, Metabolism and Lipid Research and formerly chief resident in internal medicine says, "The word that comes to mind when I think of Lynn is 'irreplaceable.' She almost single-handedly made sure that incredibly important activities (providing care to those with kidney disease, conducting research with the potential to improve the quality of life, and teaching the next generation of physicians and scholars) worked smoothly."

Lynn will not be bored in retirement. Her passion is taking her dog, Coach, to agility dog competitions. For over 15 years, she also has studied Middle Eastern dancing.

"I never ran the division," she says with a smile. "But, through the guidance of the administrators, I made sure that it was run right."

Program Notes

Re-establishing a Renal Tradition

The Paul Mennes, MD, Memorial St. Louis City-wide Renal Grand Rounds

It was a full house for the 2nd Paul Mennes, MD, Memorial St. Louis City-wide Renal Grand Rounds in February. The event actually is a resurrection of an old tradition in St. Louis when area nephrologists gathered regularly for dinner and academic discussion. A collaborative effort between the Division of Nephrology at Washington University School of Medicine and the Renal Division at Saint Louis University School of Medicine, the Renal Grand Rounds was enthusiastically re-started last October.

"Both private and academic nephrologists are so busy today, that even though we live in the same area, we rarely see each other," says Benjamin Humphreys, MD, Chief of WU's Division of Nephrology. "The opportunity to interact with colleagues and learn something is valuable and it's the primary reason we have restarted this important tradition."

As a signal that the re-starting of this tradition was a welcomed event, the first gathering was inadvertently held on a night when the St. Louis Cardinals had a baseball playoff game also scheduled. Says Humphreys, "We had more than 50 area nephrologists in attendance and more were on a wait list, so we realized we were on to something and expanded the attendance for the program in February."

More than 15 years ago, citywide Grand Rounds was initiated and run by Steven Bander, MD, an alum of the nephrology fellowship program at Washington University. The event is now named in honor of Paul Mennes, MD, a 1976 graduate of the Nephrology



Fellowship Program. He subsequently became a clinical professor of medicine before leaving to become Chief of Medicine at St. Luke's Hospital. Mennes passed away in 2014. "Dr. Mennes was a beloved figure who promoted academic and medical excellence in St. Louis and we felt this was a fitting tribute to him," explains Humphreys.

Plans are for the City-wide Renal Grand Rounds to be held twice a year with the two academic medical centers sharing equally in program content.



Come See Us! 2016 Alumni ASN Reception

We're already planning our next Division of Nephrology Reception at the American Society of Nephrology Annual Meeting in Chicago this coming November. Last year, we had more than 100 attendees stop by and catch up with friends and colleagues. It was a great time to see many of our alumni and catch up on their respective careers. Mark your calendar now to come join us this fall!



<image>





Caption





Ying (Maggie) Chen, MD, PhD

Andrew Malone, MD

First Nephrology Translational Innovation Grant Awarded

Division Microgrants Awarded

Ying (Maggie) Chen, MD, PhD, and Andrew Malone, MD, are the first recipients of the division's inaugural Translational Innovation Grant. The grant, initiated by Division Chief Benjamin Humphreys, MD, is designed to foster collaborative research efforts within the division between a clinician and physician scientist. Chen and Malone submitted a grant proposal entitled "Targeting Podocyte Endoplasmic Reticulum Stress in Alport Syndrome." Utilizing whole-exome sequencing, the project aims to identify pathogenic mutations in collagen genes that lead to Alport's syndrome. Says Chen, "I think it's a great plan to bring together clinicians and basic scientists, which can make research have a more significant impact." Adds Humphreys, ""It was heartening to see the types of collaborative work proposed between basic and clinical faculty members in the division. Increasingly, science is team-based and this RFA helped investigators think about joint projects."

In addition to the Innovation Grant, the Division also awarded four microgrants to renal staff for the following projects:

• Improving Patient Education — Lack of patient participation in a End Stage Renal Disease class delays decisions for renal treatment and/or transplant referral. A team will evaluate the use of "prescriptions" signed by physicians and short videos about dialysis modalities.

• Dialysis Education Videos — Videos about peritoneal and home hemodialysis will be developed for convenient viewing at home or in clinic.

• Reducing Catheter-Related Bloodstream Infections — Evaluating the effectiveness of a special cap for indwelling catheters that bathes the tip of the catheter in 70% alcohol. The goal is to see if the cap reduces catheterrelated bloodstream infections by 50%.

• Home Blood Pressure Cuffs for Low-Income Clinic Patients — Evaluating the use of home blood pressure cuffs to make it more convenient for patients who otherwise may find it difficult to come into the clinic regularly for checkups.

\$1.72 Million NIDDK Grant Awarded to Mahjoub



Moe Mahjoub, PhD, assistant professor of medicine in the division of nephrology and assistant professor of cell biology and physiology, is the recipient of

Moe Mahjoub, PhD

a five-year, \$1.72 million grant from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The funds will be used to research "Centrosome Dysfunction in Polycystic Kidney Disease." Defective centrosome assembly and organization can have adverse effects on cell division, migration and signaling. Mahjoub and his colleagues have found a new link between centrosome dysfunction and the development of cystic kidney diseases and will follow that discovery with research aimed at identifying the key mechanisms that regulate centrosome assembly.

Slatopolsky Scientific Symposium-April 8, 2016



As this issue goes to press, we are delighted with the strong interest in our scientific symposium celebrating the career of Eduardo Slatopolsky, MD. We'll

Eduardo Slatopolsky, MD

have more in the next edition of our alumni newsletter, but we thank the following individuals who presented lectures:

- Kevin Martin, MD, B.Ch., B.AO Saint Louis University
- Justin Silver, MD Haassah Hebrew University Medical Center
- Klaus Olgaard, MD, dr. med. University of Copenhagen
- Steve Teitelbaum, MD Washington University School of Medicine
- Ravi Thadhani, MD, MPH Harvard University
- Joseph Bonventre, MD, PhD Harvard University
- Benjamin Humphreys, MD, PhD Washington University School of Medicine
- James Shayman, MD, PhD University of Michigan
- Michael Goligorsky, MD, PhD New York Medical College
- Myles Wolf, MD, MMSc Northwestern University
- Orson Moe, MD University of Texas Southwestern

Faculty News and Awards



Jeffrey H. Miner, PhD

Jeffrey Miner Named Director of Basic Research

Jeffrey H. Miner, PhD, has been named Director of Basic Research in the Division of Nephrology. Miner, an internationally recognized researcher in basement membrane biology as it relates to the glomerulus, will not only guide the strategic direction of the basic research in the division, but also will help mentor the many trainees in the nephrology basic science laboratories.

"Our laboratory-based faculty are an outstanding group of junior and established PhD scientists and physician scientists with diverse interests in kidney development, function and disease, all of whom are enhancing their investigations by leveraging Washington University's many Core facilities for cutting-edge approaches to nephrology research," Miner says. "I see that diversity of expertise as providing new opportunities for team-oriented, interdisciplinary projects and I am excited to help grow the division's grant and funding portfolio to support their efforts."

Miner, who also published a new textbook late last year titled "Basement Membranes," assumed his new leadership role January 1, 2016.



Steven Cheng, MD; Seth Goldberg, MD; and Will Ross, MD, MPH

Three Faculty Honored with Teaching Awards

Steven Cheng, MD; Seth Goldberg, MD; and Will Ross, MD, MPH, were honored with Distinguished Service Teaching Awards from Washington University School of Medicine. Medical students give the awards annually to faculty members or house staff that exhibit exemplary service in education. Cheng received the Course Master of the Year Award from the Class of 2017. Goldberg was honored with a Distinguished Service Award from the same class. Ross was recognized with the Selective of the Year Award from the Class of 2018. Congratulations to these educators!

Global Collaboration Improves Care in Guatemala

Dialysis patients in Guatemala are benefiting from a global education partnership between Washington University renal specialists and nephrologists in that Central American country. Last fall, nephrologist Ever Cipriano, MD, traveled to St. Louis for a six-week interventional nephrology rotation at Washington University School of Medicine. He particularly was interested in perfecting the placement of permanent tunneled catheters as a way to reduce the incidence of infection among dialysis patients in his country. "Compared to patients just starting on dialysis in the U.S., who receive a temporary catheter for a few days, our patients in Guatemala get a catheter which they keep for as long as two or three years," says Dr. Cipriano. "These temporary catheters are a substandard means to maintain treatment as they lead to a very high incidence of complications and infections and significant increases in the number of hospitalizations and deaths. Permanent tunneled catheters eliminate most of these complications."

Cipriano was mentored while in St. Louis by Marcos Rothstein, MD, who is part of a group of Washington University physicians investigating early onset kidney failure in young adult patients in Guatemala. "Our physician-research team also includes Timothy Laux, Joaquin Barnoya and Vicente Sanchez. We initiated the first study of renal dialysis enrollees in coastal Guatemala," says Rothstein. "What set the Guatemalan cases apart from other Central American cases was the younger age onset (20-30 years old) and the longer travel time to dialysis facilities, as well as the widespread use of temporary catheters."

Since Cipriano returned to his country and implemented the use of permanent tunneled catheters, he has seen reduced infections and improved dialysis care. He has since been named an adjunct professor in the adult Nephrology Training Program at del Instituto Guatemalteco de Seguirdad Social (IGSS). "It gives me the opportunity to share this knowledge with nephrology fellows, teaching them the proper way to place dialysis vascular access, and to expand our clinical research capabilities to improve patient outcomes," he says.

Rothstein has long-term plans for continued collaboration with Guatemalan nephrologists, including sending Washington University fellows and internal medicine residents to Guatemala.



Guatemalan nephrologist Ever Cipriano, MD, visited Washington University for training on the placement of permanent tunneled catheters as a way to reduce infections in dialysis patients.

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I was game." Cheng and Professor Windus, however, aren't slouches when it comes to music. Both perform as members of the St. Louis Philharmonic Orchestra — Cheng on violin and Windus on cello. The Orchestra is the oldest and largest regional community orchestra in St. Louis. Cheng serves as its

co-concertmaster.

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"The class suddenly perked up," laughed humiliating suggestion that was offered so

would "do something fun for them." Cheng. "When they got the answers correct, someone suggested that Dave Windus and I perform for them before the course exam. To be honest, this was the cheapest and least

Cheng, MD, challenged his students to correctly answer the majority of questions during a renal lecture. If they did, he

who has been with the Philharmonic Orchestra for more renal pathophysiology course? Form a faculty band and write a song called "The Ballad of the Sad Kidney." That's what happened when Associate Professor Steven that I cannot sing and play a musical instrument at the same time!"

> "Give the time I have owned this rare collectible, its value now may actually be higher, maybe \$18.25," he says.

> other faculty members -Assistant Professor Timothy Yau, MD, on guitar (he also plays the Irish fiddle and other stringed instruments); Assistant Professor Rowena Delos Santos, MD, a classical pianist by training but who plays percussion on a washboard for this group; and Assistant Professor Seth Goldberg, MD, who admits playing the piano and oboe, but for the renal band, plays an \$18 ukulele he bought off of eBay.

"I play cello, but usually



From left to right: Dave Windus, MD; Rowena Delos-Santos, MD; Timothy Yau, MD; Steven Cheng, MD; and Seth Goldberg, MD.

a name for our band."



The group, which formed in 2013, comes up with 1-2 songs annually. You can

listen to their first song, "The Ballad of the Sad Kidney," on youTube. "It's a fun, creative

way for a bunch of musical nephrologists to

gest a good group name, but all have been

Ballad of the Sad Kidney" on youtube.com

vetoed as cheesy. Maybe alumni will suggest

To see the band in action, google "The

Adds Delos Santos, "I've tried to sug-

geek out with each other," says Cheng.

sitting down," says Windus, **The Renal Ensemble** Want to know a good way to liven up a

The Ballad of the Sad Kidney

& Musical Musings from