The Division of Nephrology at The Mount Sinai Hospital has a long history that begins with Alfred P. Fishman, MD, and Irving Kroop, MD, who performed the first hemodialysis in the United States at Mount Sinai in 1948. Ten years later, Mount Sinai opened the first dialysis facility in New York, and in 1959 we established our outpatient kidney clinic.

The Division has become one of the largest in the country, under the previous leadership of Paul Klotman, MD, and Barbara Murphy, MB, BAO, BCh, FRCPI. Today, it has more than 50 full-time faculty that include academic clinical physicians, physician scientists, and PhD scientists.

We provide care for a large and ethnically diverse patient population and have steadily maintained a strong research program, receiving more than $10 million of National Institutes of Health funding per year. Our faculty has published papers in high-impact journals, including Proceedings of the National Academy of Sciences, Nature Medicine, and The Journal of Clinical Investigation. Recent research has advanced understanding of podocyte biology, systems biology of kidney disease, pathogenesis of diabetic nephropathy, HIV-associated nephropathy, transplant immunology, and kidney fibrosis. We also have developed one of the largest fellowship programs in the country and now have six fellows each year.

Today, the Mount Sinai Health System, which consists of seven member hospitals and the Icahn School of Medicine at Mount Sinai, manages seven dialysis units that now cover the entire Manhattan area. Our physicians are treating the largest chronic kidney disease patient population in New York. Together, we will further advance excellence in patient care, research, and education.

**Accelerating Science – Advancing Medicine**

John Ci-jiang He, MD, PhD, Chief, Division of Nephrology, Professor of Medicine (Nephrology), and Pharmacology and Systems Therapeutics

**New Program Offers Integrated Fellowship Training**

Michael Ross, MD, with Holly Koncicki, MD, who will become the first fellow to complete an integrated training program offered with Hospice and Palliative Medicine, or geriatrics care.

Michael Ross, MD, Associate Professor of Medicine (Nephrology), is the Director of the Nephrology Fellowship Program and holds several national leadership positions in research and medical education, including roles on the ASN Program Directors Executive Committee and as Deputy Editor of Kidney International.

The Mount Sinai Nephrology Fellowship Program, the largest in New York City and one of the largest in the nation, is renowned for providing innovative research, clinical care, and medical education programs.

Mount Sinai’s is one of only a few Nephrology divisions in the nation to have two National Institutes of Health T32 Training Grants to foster the development of young investigators. It is also the only program to offer integrated fellowship training in nephrology in combination with Hospice and Palliative Medicine, or geriatrics care. Holly Koncicki, MD, will become the first fellow to complete this program in June 2014.

Current second-year fellows making notable achievements include:

- Mayra Rodriguez, MD, elected to serve as Fellow Representative on the American Society of Nephrology Program Directors Executive Committee;
- Girish Nadkarni, MD, whose research was selected as one of the “Top Oral Abstracts by Trainees for the American Society of Nephrology (ASN) Kidney Week 2015 Annual Meeting”;
- Madhav Menon, MD, who received an ASN Fellowship Grant for research into novel mechanisms of chronic allograft nephropathy.

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Elucidating Podocyte Involvement in Glomerular Disorders

Kidney podocytes are highly specialized visceral epithelial cells that line the urinary space and form the final barrier to protein loss. Primary and secondary glomerular disorders that involve podocyte injury and loss account for up to 90 percent of end-stage kidney disease. The mechanisms underlying podocyte survival, injury, and loss remain poorly understood, and there are currently no podocyte-specific drugs commercially available.

Mount Sinai’s Division of Nephrology, under the direction of John He, MD, PhD, has become a leader in podocyte research. Dr. He’s lab has made significant advances in elucidating details of novel podocyte transcriptional networks and developing a model of the glomerular filter. Erwin Bottinger, MD, established the BioMe™ Biobank, a unique collection of plasma and DNA samples from nearly 30,000 patients—a highly valuable resource for translational research in glomerular disease. Additionally, Dr. Bottinger, Director of The Charles Bronfman Institute for Personalized Medicine, continues to make seminal discoveries in basic research on transforming growth factor beta signaling.

Peter Chuang, MD, Assistant Professor of Medicine (Nephrology), is studying epigenetic podocyte survival pathways in diabetic nephropathy. Kirk Campbell, MD, Assistant Professor of Medicine (Nephrology), utilizes cellular and animal models of glomerular disease to characterize signaling molecules that mediate podocyte depletion. Lewis Kaufman, MD, Associate Professor of Medicine (Nephrology), has identified a GTPase-activating protein that contributes to glomerular injury in focal segmental glomerulosclerosis. Gary Striker, MD, Professor of Medicine (Nephrology), over the course of an outstanding career, continues to significantly enhance our understanding of the impact of oxidative stress and aging on glomerular function.

Supplementing this work, the Division is involved in multiple clinical studies in primary and secondary glomerular disease and advancing genomic medicine, through the Icahn Institute for Genomics and Multiscale Biology, which provides cutting-edge diagnostic tools to assist us in the management of patients with hereditary glomerular disease.

Improving Outcomes for Peritoneal Dialysis

While long-term results are comparable between hemodialysis (HD) and peritoneal dialysis (PD) for patients who have reached end-stage renal disease, PD is clearly underutilized. Only 7 percent of the patients who currently dialyze in the United States use PD.

The Mount Sinai Hospital’s Kidney Center Peritoneal Dialysis Program, established in 1981 to promote self-care among dialysis patients, has initiated and trained approximately 700 patients in PD, and is the largest program of its kind in the New York City area. Medical Director Jaime Uribarri, MD, leads a staff of four registered nurses, a nutritionist, social worker, and full-time coordinator. Staff members visit patients at home at the beginning of therapy, and annually, to provide further support.

Currently, the program has 61 patients, with an average age of 52 + 15 years (mean + SD). Sixty percent are women; 44 percent, African American; 28 percent, Hispanic; and 20 percent, Caucasian. The weekly Kt/V (an index of dialysis adequacy) median of 2.08 is higher than the national rate, and the peritonitis rate (1 for every 40 patient/months) is below the average national rate. The current mortality rate is about 10 percent per year, well below national rates.

Mount Sinai Health System Offers Expanded Care

The combination of The Mount Sinai Medical Center and Continuum Health Partners in 2015 established the Mount Sinai Health System, and represents a bold new era in community-based care, education, and research. The new entity, consisting of the Icahn School of Medicine at Mount Sinai, seven member hospitals, and dozens of ambulatory care locations, and clinical and academic relationships, offers unparalleled opportunities for advancing patient care in nephrology.

The Health System provides care for more than 900 chronic hemodialysis patients, 76 peritoneal dialysis patients, as well as inpatient consultative services and clinics at each of the member hospitals. All patients have access to specialists in the management of glomerular disease, hypertension, transplant, kidney stone, and genetic diseases of the kidney.

The Icahn School of Medicine’s three Nephrology fellowship programs will now offer training in high-volume centers, and include all aspects of transplant care, kidney biopsy, radiologic evaluation of the kidney, and pathologic interpretation of biopsy results. A fully integrated institution will also offer more collaborative research opportunities for trainees interested in academic medicine.