

William B. Schwartz Division of Nephrology 2007 Annual Report



We dedicate this year's Annual Report to our wonderful patient care staff. We specifically acknowledge Alice A. Martin, RN and Jean McCorry, RN as 2008 Gift of Life Award recipients from the National Kidney Foundation of MA, RI, NH, VT.



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Message From The Chief

Welcome to our sixth Annual Report. This year has certainly been exciting! The year started off with a wonderful celebration of Dr. Harrington's 70th birthday. Page 2 showcases just a few of the wonderful pictures from the daylong occasion. Then, through the course of the year and in early 2008, 10 babies joined the Division family. Page 3 contains photos of the new additions to the Division's family album. And finally, in March 2008, a little surgery was done on our name and we are now officially Tufts Medical Center.



The Division is now comprised of 18 full-time physicians and scientists, 4 part-time physicians and 38 staff to support our growing clinical, research, educational and administrative endeavors, which are described in the following pages. As in previous years, caring for patients remains the core of what we do. We are also highly committed to scientific inquiry and solving problems relating to kidney disease. A large proportion of our Division members are actively involved in research. In addition, the Division is dedicated to the educational mission of academic medicine, engaged in the education of medical students and residents and providing subspecialty training in Nephrology and post-graduate medical education.

We have much to be proud of in 2007. Clinical highlights include growing metabolic bone disease and dialysis programs and the peritoneal dialysis program being designated as 1 of 4 STAR Centers in the US. Collaborations with external partners have continued to be incredibly rewarding and valuable. Our work with the National Kidney Foundation includes being the editorial home for the *American Journal of Kidney Diseases* (page 47) and the NKF Center for Guideline Development and Implementation (pages 54 and 59). We continue our long collaboration with Dialysis Clinic, Inc which is described on page 58. Research highlights include increased numbers and amounts of grants along with 6 Division members holding Career Development (K) Awards. Our public policy initiatives expanded in 2007 and are described starting on page 57. In 2007, Division members worked with the Food and Drug Administration and also the Centers for Disease Control and Prevention.

Several Division members were honored this year. Dr. Perrone was awarded the 2007 Gift of Life Outstanding Physician Award from the National Kidney Foundation of MA, RI, NH, VT. In addition, Alice A. Martin, RN and Jean McCorry, RN were notified that they would be honored as 2008 Gift of Life Award recipients from the National Kidney Foundation of MA, RI, NH, VT. Dr. Gilbert was also honored this year. He received teaching awards from both the 2007 and 2008 TUSM classes. Finally, thanks to Michelle Richardson for compiling this year's Annual Report.

We are very proud of what we have accomplished this past year and are looking forward to a successful 2008!

Sincerely yours,

Andrew S. Levey, MD
Chief, William B. Schwartz Division of Nephrology
Tufts Medical Center
Dr. Gerald J. and Dorothy R. Friedman Professor of Medicine
Tufts University School of Medicine

Dr. Harrington's 70th Birthday Party

In January, friends, family, and colleagues celebrated Dr. Harrington's 70th birthday and his contributions to the Division and the field of nephrology. The day's events included the 1st Annual John Harrington Grand Rounds where Dr. Madias was the inaugural presenter; a very special Mega Rounds was conducted at which time the name was officially changed to Harrington Rounds; the 6th floor conference room in the Division was renamed to the Harrington Conference Room; and the day was capped off by a wonderful dinner and roast at Jury's Restaurant. Drs. Miskulin and Rao, along with Division support staff, planned the events.



The Family Tree

The Division's family grew exponentially in 2007 with 8 babies born to or adopted by Division members! And then 2 more arrived in early 2008!! There must be something in the water...



Abigail Marie adopted by Michelle & Mark Richardson
April 7th at 12:29 pm; 6 pounds 8 ounces, 20 inches



Anna Evelyn born to Emily Dulude & Matt Brier
August 18th at 1:32 pm; 6 pounds 10 ounces, 19 inches



Yusuf born to Ashan & Saima Alam
August 21st at 2:23 pm; 5 pounds 14 ounces, 19 inches



Keshav born to Vandana Menon & Sashi Kollipara
September 8th at 12:58 pm; 7.9 pounds, 21 inches



Liesl Ann-Marie born to Caren DeMello & Carlton Vaz
September 7th at 5:18 pm; 7 pounds, 20 inches



Nathan Alexander born to Dan Weiner & Kerri Scharr
September 17th at 5:27 pm; 7 pounds 14 ounces, 19 ½ inches



Abigail Jean born to Becca & Dan Persson
October 15th at 2:09 pm; 6 pounds 9 ounces, 19 $\frac{1}{2}$ inches

In addition, a baby girl was born to
Orfeas and Aga Liangos in 2007



Early 2008 Additions



Joyce Yiting Song born to Cindy Huang
January 16th 2008 at 11:39 pm; 7 pounds 4 ounces



Elizabeth Lucia born to Elizabeth & Matt Frank
February 5th 2008 at 6:13 am; 7 pounds 14 ounces, 20"

Administration

The William B. Schwartz Division of Nephrology is an integral part of the Tufts Medical Center and the Tufts University School of Medicine (TUSM) communities. As listed below in the Staffing section, many Division members have other appointments within Tufts Medical Center and TUSM. In addition, the Division also enjoys a close and long-term relationship with Dialysis Clinic, Incorporated (DCI), the largest not-for-profit provider of dialysis care in the United States. In a broader organizational structure, Division members are also active participants within their professional organizations. Through these relationships, the Division is able to provide excellent patient care, perform high-level research, and educate students and practitioners about kidney disease.



Photograph by Walter C. Dent

2007 William B. Schwartz Division of Nephrology

Location

The Division maintains offsite and onsite ambulatory, dialysis and inpatient operations, with administrative and research operations located within the Tufts Medical Center campus. The location of activities performed both onsite at Tufts Medical Center and at offsite affiliates are listed in Table 1 and Table 2, respectively.

Table 1: Onsite Locations of Division Activities at Tufts Medical Center

Building	Floor	Activity
35 Kneeland St.	1 st	<i>American Journal of Kidney Diseases</i> Editorial Offices
	4 th	Kidney and Blood Pressure Center (KBPC)
	5 th	Outpatient dialysis services provided by DCI
	5 th & 6 th	Majority of Division support operations, and physician and research staff offices
Ziskind Floating North	8 th	Physician offices
	7 th	V.S. Balakrishnan, MD's research lab
	7 th	Inpatient dialysis services provided by DCI
North	7 th	Primary location for inpatient ward service

Table 2: Offsite Clinical Nephrology Activities Affiliated with Tufts Medical Center

Area	Physicians	Practice Sites	Services Offered
Concord	Andrei Kouznetsov, MD Valerie R. Price, MD Klemens B. Meyer, MD	<ul style="list-style-type: none"> Pratt Medical Group Nephrology and Hypertension Emerson Hospital, Whittier Rehab DCI Walden Pond 	<ul style="list-style-type: none"> Outpatient nephrology Inpatient consultation and dialysis services Outpatient dialysis services
Greater Boston	Michael B. Cohen, MD Anthony Z. Dash, MD Samina S. Khan, MD	<ul style="list-style-type: none"> Hospital-based clinics at Lawrence Memorial, Melrose-Wakefield and Caritas St. Elizabeth's Medical Center hospitals Caritas St. Elizabeth's Medical Center, Kindred, Lawrence Memorial, Melrose-Wakefield, Mt. Auburn and Whidden hospitals DCI Ball Square, Caritas St. Elizabeth's Medical Center, Cambridge, Malden, Medford, Saugus, Stoneham, and Woburn dialysis units 	<ul style="list-style-type: none"> Outpatient nephrology Inpatient consultation and dialysis services Outpatient dialysis services

Staffing

Physician Staff

Andrew S. Levey, MD, Chief

Ronald D. Perrone, MD, Associate Chief

V. S. Balakrishnan, MD, MRCP, PhD

Jeanine A. Carlson, MD

Carmen Castaneda-Sceppa, MD, PhD

Dr. Gerald J. and Dorothy R. Friedman Professor of Medicine

Professor of Medicine

Associate Professor of Medicine

Associate Clinical Professor of Medicine

Assistant Professor of Medicine and

Associate Professor of Nutrition

Friedman School of Nutrition Science and Policy
Scientist

Jean Mayer USDA Human Nutrition Research

Center on Aging at Tufts University

Assistant Professor of Medicine

Michael B. Cohen, MD

Anthony Z. Dash, MD
Scott J. Gilbert, MD
John T. Harrington, MD

Annamaria T. Kausz, MD, MS
Samina S. Khan, MD, MPH, MBA
Andrei Kouznetsov, MD
Amy B. Kuhlik, MD

Vandana Menon, MD, PhD, MPH, MS
Klemens B. Meyer, MD
Dana C. Miskulin, MD, MS
Monica Pilichowska, MD, PhD
Valerie R. Price, MD
Madhumathi Rao, MD, FRCP(E)
Mark J. Sarnak, MD, MS
Lesley A. Stevens, MD, MS
Katrin Uhlig, MD, MS
Daniel E. Weiner, MD, MS

Special and Scientific Staff

Michelle M. Richardson, PharmD,
BCPS, FCCP

Associate Physician Staff

Bertrand L. Jaber, MD

Orfeas Liangos, MD

Nicolaos E. Madias, MD

Adjunct Physician Staff

Miguel Cendoroglo, MD

John Gill, MD, MS

Assistant Professor of Medicine
Associate Professor of Medicine
Professor of Medicine
Dean Emeritus, TUSM
Assistant Professor of Medicine
Assistant Professor of Medicine
Assistant Professor of Medicine
Assistant Professor of Medicine
Dean of Students, TUSM
Assistant Professor of Medicine
Associate Professor of Medicine
Assistant Professor of Medicine
Assistant Professor of Pathology
Assistant Clinical Professor of Medicine
Assistant Professor of Medicine
Associate Professor of Medicine
Assistant Professor of Medicine
Assistant Professor of Medicine
Assistant Professor of Medicine

Assistant Professor of Medicine

Associate Professor of Medicine
Vice Chairman of Medicine for Clinical Affairs
Caritas St. Elizabeth's Medical Center
Assistant Professor of Medicine
Division of Nephrology
Caritas St. Elizabeth's Medical Center
Maurice S. Segal, MD Professor of Medicine
Chairman, Department of Medicine
Caritas St. Elizabeth's Medical Center
Chief Academic Officer
Caritas Christi Health Care System

Associate Professor of Medicine
Federal University of Sao Paulo
Administrative Director of the Oswaldo Ramos
Foundation
Director of the Israelite Hospital Albert Einstein
Sao Paulo, Brazil
Assistant Professor of Medicine
University of British Columbia and St. Paul's Hospital
Vancouver, Canada

Tazeen H. Jafar, MD, MPH

Director, Clinical Epidemiology Unit
Head, Section of Nephrology
Associate Professor
Medicine & Community Health Sciences
Aga Khan University
Karachi, Pakistan

Gregorio Obrador, MD, MPH

Professor of Medicine
Academic Dean
Panamerican University School of Medicine
Mexico City, Mexico

Management Staff

Anna M. Suffoletta, MBA

Business Operations Manager III
William B. Schwartz Division of Nephrology and
Pratt Medical Group Nephrology and Hypertension
Concord

Lydje Lahens

Research Administrator III
William B. Schwartz Division of Nephrology

Faculty Descriptions

Andrew S. Levey, MD

Dr. Levey's interests are in patient care, research, clinical practice guidelines, training in research and education, and health care policy related to chronic kidney disease (CKD).

His *patient care interests* are in CKD, diabetic kidney disease, polycystic kidney disease, and systemic lupus erythematosus.

His *research interests* include measurement and estimation of kidney function, epidemiology of CKD, treatments to slow the progression of CKD, cardiovascular disease in CKD, nutrition in CKD, and assessment of outcomes in patients treated by dialysis and kidney transplantation. He was the principal nephrologist co-investigator for the NIDDK-sponsored Modification of Diet and Renal Disease (MDRD) Study. He and his colleagues have developed new equations to estimate glomerular filtration rate (GFR) from serum creatinine using this large database, and he is now leading the NIDDK-sponsored CKD Epidemiology Collaboration (CKD-EPI) to pool databases from other studies to develop improved estimating equations. He was Principal Investigator for the ACE Inhibition in Progressive Renal Disease (AIPRD) Study Group, a collaboration of investigators who have pooled individual patient data on clinical trials of ACE inhibitors in nondiabetic kidney disease. He was Principal Investigator for the NIDDK-sponsored Hemodialysis (HEMO) Study, comparing the standard dose of dialysis with high dose of dialysis. He was also the principal nephrologist co-investigator for the AHRQ-sponsored CHOICE Study, a Patient Outcomes Research Team, studying kidney failure treated by dialysis.

Dr. Levey is a widely recognized authority on *clinical practice guidelines* in CKD. He led the National Kidney Foundation (NKF) Task Force on Cardiovascular Disease in 1998. He was the Chair for two NKF Kidney Disease Outcome Quality Initiation (KDOQI) Work Groups. "Chronic Kidney Disease: Evaluation, Classification and Stratification of Risk" was published in 2002. "Hypertension and Antihypertensive Agents in Chronic Kidney Disease" was published in 2004.

He has led two Kidney Disease Improving Global Outcomes (KDIGO) conferences. In 2004, the conference addressed definition and classification of CKD and in 2006 the conference addressed public health approaches and initiatives. He is Director of the NKF Center on Clinical Practice Guideline Development and Implementation at Tufts Medical Center.

Dr. Levey's interests in *training* are focused primarily at the level of post-graduate fellowship training and mentoring junior faculty. He directs the large research fellowship-training program of the Division. He is Principal Investigator of the Division's 5-year NIDDK grant (T32) "Epidemiology, Clinical Trials and Outcomes Research." The research program is also funded, in part, by the NKF Center for Clinical Practice Guideline Development and Implementation, and grants and contracts from foundations and industry.

Dr. Levey's contributions to *policy* are focused primarily on guideline implementation, quality improvement and public policy related to CKD. He is a member of the National Kidney Disease Education Program (NKDEP) of the NIDDK. He has been the Editor-in-Chief of the *American Journal of Kidney Diseases* since 2006, and was formerly Associate Editor for Kidney Disease and Hypertension for the *Annals in Internal Medicine*. He co-chaired the 2007 technical expert panel sponsored by the Centers for Disease Control and Prevention on "Comprehensive Public Health Strategies for Preventing the Development, Progression, and Complications of Chronic Kidney Disease." He will co-chair the 2008 workshop sponsored by NKF and Food and Drug Administration on "Proteinuria as a Surrogate Outcome in Chronic Kidney Disease."

Ronald D. Perrone, MD

Dr. Perrone's patient care interests are in polycystic kidney disease, general nephrology, acid-base disorders, hypertension, and kidney transplantation medicine. He is the Director of the Polycystic Kidney Disease Center. His *research interests* are largely focused in the area of polycystic kidney disease, including slowing progression and determining the natural history of the extrarenal complications. In prior studies, he addressed the mortality of extrarenal complications of polycystic kidney disease after kidney failure treated by dialysis. He will continue this work in collaboration with Drs. Alan Collins and Blanche Chavers of the United States Renal Data System. Dr. Perrone also is the Principal Investigator of the Boston Patient Care Center of an NIH-funded multi-center clinical trial (HALT Progression in PKD, part of the Polycystic Kidney Disease Clinical Trials Network). This study uses angiotensin converting enzyme inhibitors in combination with angiotensin receptor blockers to slow the progression of polycystic kidney disease and utilizes the unique endpoint of kidney volume growth as assessed using magnetic resonance imaging. Tufts Medical Center is one of the four national HALT-PKD Study centers that will conduct this 6-year, \$25 million study sponsored by the NIH. Drs. Perrone (the PI) and Miskulin direct the study that started in the winter of 2006.

Dr. Perrone is the Tufts Medical Center Principal Investigator of the TEMPO 3/4 study. TEMPO 3/4 is a global trial that is addressing the efficacy of the vasopressin-receptor antagonist tolvaptan to slow progression of polycystic kidney disease. The unique endpoint of kidney volume growth will be assessed using magnetic resonance imaging. Tufts Medical Center is one of 100 international TEMPO 3/4 Study centers.

Vaidyanatha S. Balakrishnan, MD, PhD

Dr. Balakrishnan's *clinical specialties* are CKD, dialysis, transplantation and the treatment of kidney stones. His *research interests* focus on factors modulating inflammation and oxidative stress and their impact on clinical outcomes among patients with CKD, particularly those on hemodialysis. He is interested in the impact of pro-inflammatory and anti-inflammatory cytokines and cytokine-specific inhibitory proteins on clinical outcomes in patients on hemodialysis. In recent years, Dr. Balakrishnan's research has focused on the role of genetic factors, particularly single nucleotide polymorphisms involving the cytokine genes, modulating the micro-inflammatory state and clinical outcomes among hemodialysis patients. Dr. Balakrishnan has received several research awards for his work on oxidative stress and inflammation. He is the Director of Continuing Medical Education for the Division and coordinates research conferences and visiting professorships.

Jeanine A. Carlson, MD

Dr. Carlson's primary appointment is within the Division of General Medicine and her clinical practice is within the Pratt Diagnostic Center. She continues to be an active nephrologist, with particular expertise in the medical complications of pregnancy. The Pratt Diagnostic Center is a concierge-style medical practice that is offered to patients who want to spend more time with their doctors, while exploring preventative and wellness techniques. Patients pay an annual fee for this service, and the funding benefits Tufts Medical Center's primary care practice, General Medical Associates.

Carmen Castenada-Sceppa, MD, PhD

Dr. Sceppa's primary appointment is in the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University. Her *research focuses* on the role of protein nutrition (primarily protein) and exercise (primarily resistance training) to counteract the loss of muscle mass and function with age and with diabetes and CKD. She studies mechanisms associated with muscle wasting including insulin resistance and inflammation. Dr. Sceppa's research efforts include reaching out to populations of diverse ethnic backgrounds as well as translating her research findings into clinical practice.

Michael B. Cohen, MD

Dr. Cohen practices primarily at Melrose-Wakefield Hospital. He consults in both the inpatient and outpatient settings on the care of patients with kidney disease, hypertension, and those treated with hemodialysis and peritoneal dialysis. Dr. Cohen is Co-Medical Director at the DCI Ball Square dialysis unit in Somerville. Additionally he is involved with teaching medical students, residents, and fellows in nephrology.

Anthony Z. Dash, MD

Dr. Dash practices primarily at Lawrence Memorial Hospital and Caritas St. Elizabeth's Medical Center (CSEMC). He consults in both the inpatient and outpatient settings on the care of patients with kidney disease, hypertension, and those treated with hemodialysis and peritoneal dialysis. Dr. Dash is the Co-Medical Director at the DCI Ball Square dialysis unit in Somerville.

Scott J. Gilbert, MD

Dr. Gilbert coordinates the educational activities within the Division. He is the Director of the Fellowship Training Program and coordinates housestaff nephrology education, overseeing rotations on the Ward and Consult services and in the Kidney and Blood Pressure Center (KBPC). Dr. Gilbert is active in reforming the educational curriculum at Tufts Medical Center and he also plays a major role in medical student education at TUSM where he directs the

Renal Pathophysiology Course and the Consultative Nephrology elective. Dr. Gilbert's other educational activities include teaching renal pharmacology at the Sackler School of Graduate Biomedical Sciences at Tufts University. Dr. Gilbert is also the medical director of the KBPC. His *clinical interests* are the treatment of CKD, renal artery stenosis, hemodialysis and transplantation. Dr. Gilbert's *research interests* include the management of lupus nephritis and the treatment of renal artery stenosis. Dr Gilbert was promoted to the rank of Associate Professor of Medicine at TUSM this past year.

John T. Harrington, MD

Dr. Harrington has been a part of the Nephrology Division at Tufts Medical Center since his fellowship training under Drs. William B. Schwartz and Jerome P. Kassirer in the mid-1960s. Now Dean Emeritus and Professor of Medicine at TUSM, Dr. Harrington focuses on outpatient care, in-patient consultation and education of nephrology fellows, internal medicine house staff and medical students. Dr. Harrington is an Associate Editor of the *American Journal of Kidney Diseases* where he is in charge of two features - the World Kidney Forum and the Acid, Base, and Electrolyte Teaching Cases. His intellectual interests remain the broad field of clinical nephrology and specifically the arcane world of acid-base, fluid and electrolyte disturbances. Dr. Harrington was recognized in "Who's Who in the World 2006 and 2007".

Bertrand L. Jaber, MD

Dr. Jaber's primary appointment is in the Department of Medicine at CSEMC where he is the Vice Chair for Clinical Affairs in the Department of Medicine, and Directs the Kidney and Dialysis Research Laboratory. His *research interests* are broad and include: biocompatibility of hemodialysis membranes, apoptosis of leukocytes in uremia, dialysis delivery in acute kidney injury, novel extracorporeal adsorptive therapies in patients receiving dialysis, the role of daily hemofiltration in kidney failure, in vivo and in vitro performance of dialyzers, effect of kidney transplantation on sleep apnea, and cytokine gene polymorphisms in acute kidney injury. Dr. Jaber serves as co-editor for the *American Journal of Kidney Diseases*.

Annamaria T. Kausz, MD

Dr. Kausz is now a Senior Director of Medical Affairs at Advanced Magnetics, Inc.; its chief therapeutic product is aimed at optimizing the management of anemia in patients with chronic kidney disease. She remains affiliated with the Division, participating in patient care, research and other academic activities. Her *research* encompasses evaluation of the care of patients with CKD at all phases, including prior to and after initiation of dialysis, and following kidney transplantation. Her research has focused on the impact of the complications associated with decreased kidney function and comorbid conditions on outcomes among patients with CKD. Dr. Kausz's *clinical interests* are in CKD, dialysis, transplantation, and pediatric nephrology.

Samina S. Khan, MD, MPH, MBA

Dr. **Khan** directs the Bone Biopsy Program in the KBPC, and has set up a Bone Biopsy Program at CSEMC. She provides clinical coverage for outside nephrology practices affiliated with the Division. Her *clinical practice interests* are CKD, dialysis, transplantation, and metabolic bone disease. Her primary *research interests* involve resource utilization and costs of care, medication adherence among patients with CKD, and renal osteodystrophy. Dr. Khan is developing an economic model in collaboration with statisticians in the department of Clinical Care Research at Tufts Medical Center and an economist at Brandeis University. This model will help to project future costs of care of patients with CKD. She also serves as a faculty member in the department of Continuing Medical Education at TUSM.

Andrei Kouznetsov, MD

Dr. Kouznetsov practices at Emerson Hospital and the Pratt Medical Group Nephrology and Hypertension office in Concord. Dr. Kouznetsov is also the Associate Medical Director of Walden Pond DCI in Concord. His *clinical specialties* are CKD, hypertension, dialysis, transplantation and general nephrology.

Amy B. Kuhlik, MD

Dr. Kuhlik is the Dean for Student Affairs at TUSM. She maintains a clinical practice within the Division by holding one half-day clinic a week and also attending on the nephrology consult service several weeks a year. Dr. Kuhlik's *clinical specialties* are CKD, pregnancy, and polycystic kidney disease.

Orfeas Liangos, MD

Dr. Liangos' primary appointment is in the Division of Nephrology at CSEMC. He is the Director of Acute Renal Failure Research at CSEMC, member of the Kidney and Dialysis Research Laboratory at CSEMC and member of the Dialysis Research Laboratory at Tufts Medical Center. He directs the acute kidney injury research efforts at CSEMC and Tufts Medical Center, as well as collaborations with outside institutions. Dr. Liangos also trains Tufts Medical Center research fellows. Dr. Liangos' *research interests* within acute kidney injury include: genetic polymorphisms, device-related research, dialysis delivery and urine and blood biomarkers. Dr. Liangos also participates in resident and student teaching at CSEMC and at TUSM. In addition, he performs clinical duties for the Department of Medicine at CSEMC.

Nicolaos E. Madias, MD

Dr. Madias' primary appointment is in the Department of Medicine at CSEMC. He is Chairman of the Department of Medicine at CSEMC, Chief Academic Officer at Caritas Christi Health Care System, and the Maurice S. Segal, MD Professor of Medicine at TUSM. Dr. Madias is interested in the broad field of acid-base and electrolyte metabolism. He is pursuing several projects on the epidemiology and management of hyponatremia.

Vandana Menon, MD, PhD, MPH, MS

Dr. Menon is the recipient of a K23 Career Development Award from the NIDDK to investigate the role of non-traditional risk factors in the development of cardiovascular disease in CKD. Using data from the MDRD Study cohort, Dr. Menon is studying novel risk factors, including oxidative stress and insulin resistance, in non-diabetic kidney disease. In addition, she is conducting an ancillary study to the HALT-PKD trial examining the interrelationships between inflammation, oxidative stress and endothelial function in patients at different stages of PKD. Dr. Menon has also received funding from the Polycystic Kidney Disease Foundation and Satellite Healthcare to study the epidemiology of endothelial function in PKD. Dr. Menon's publications during the past year include examination of cystatin C, fetuin and body mass index, as risk factors for outcomes in the MDRD Study cohort.

Klemens B. Meyer, MD

Dr. Meyer is Director of Dialysis Services at Tufts Medical Center, Medical Director at DCI Boston and DCI Walden Pond, and Medical Director for the Home Dialysis Program at DCI Ball Square. His *clinical interests* are CKD, dialysis, and kidney transplantation. Dr. Meyer's *research interests* are the measurement of patient experience and dialysis informatics. He is also actively involved in data-driven quality improvement activities. In his capacity as DCI's Medical Director for Information Systems, Dr. Meyer participates in the development and operations of both medical and business information systems, guiding the work of a team of

approximately 45 information technology staff and three nurses at DCI and Keane, Inc. in Nashville and Chicago. Dr. Meyer currently serves on the Boards of Directors of the ESRD Network of New England and of the National Forum of ESRD Networks.

Dana C. Miskulin, MD, MS

Dr. Miskulin is the recipient of a K23 Career Development Award from the NIDDK pertaining to the measurement of case-mix severity in dialysis patients and its application to clinical trials the assessment of quality of care of dialysis patients. Dr. Miskulin also directs the DCI Comorbidity Assessment Project whose goal is to develop and implement procedures for the collection of comorbidity information and adjustment for comorbidity in reporting the quality of care provided at DCI facilities. Dr. Miskulin is also a Co-Investigator for the HALT-PKD Study. Her *clinical interests* are in general nephrology, polycystic kidney disease, and kidney stones.

Monica Pilichowska, MD, PhD

Dr. Pilichowska's primary appointment is in the pathology department at Tufts Medical Center. She is board certified in Anatomic and Clinical Pathology and Hematopathology and a member of Renal Pathology Society. Dr. Pilichowska has a special interest in renal disorders and interprets renal biopsies in patients with medical kidney disease and renal transplants. She conducts renal biopsy conference at regular intervals for Division members. Her current research studies include renal involvement in lymphoproliferative disorders, autoreactive B-cell clones in systemic lupus erythematosus and IgA nephropathy.

Valerie R. Price, MD

Dr. Price practices at Emerson Hospital and the Pratt Medical Group Nephrology and Hypertension office in Concord, as well as outpatients in the surrounding communities. Her areas of interest include acute kidney injury and chronic kidney failure, management of chronic dialysis patients, and electrolyte disorders. In addition, Dr. Price works closely with community urologists to manage kidney stone disease. She volunteers at a local school, teaching children about human anatomy and physiology.

Madhumathi Rao, MD, FRCP (E)

Dr. Rao's *research interests* are in the genetics of chronic kidney disease and diabetic kidney disease and in the role of mitochondrial injury in the complications and progression of chronic kidney disease. She is a recipient of a K23 career development award from the NIDDK to study the role of genetic polymorphisms of TGF- β 1 and PAI-1 in cardiovascular and kidney disease progression among patients with CKD. In addition she will extend these studies to the development and progression of kidney disease in patients with type I diabetes under the Genetics of Kidney Disease in Diabetes (GoKinD) study conducted by the Joslin Diabetes Center and George Washington University Biostatistics Center. Dr. Rao is also a recipient of an R-21 award to study the role of mitochondrial injury in the anemia of chronic kidney disease. She received funding from the Paul Teschan Research Fund and Amgen to evaluate the role of mitochondrial dysfunction in anemia, inflammation and cardiovascular disease among dialysis patients. Dr. Rao actively collaborates with Dr. Balakrishnan and with Dr. Shirihai of TUSM, to study the role of calcineurin inhibitor induced mitochondrial injury in the development of de novo diabetes after kidney transplantation and with Dr. Jose Ordovas of the Human Nutrition Research Center on Aging for her genetic studies.

Michelle M. Richardson, PharmD, FCCP, BCPS

Dr. Richardson's *research interest* is the study of quality of life and satisfaction in patients with CKD. As a pharmacist, her *clinical interests* involve appropriate dosing and use of medications in patients with CKD. Dr. Richardson is the director of the DCI Outcomes Monitoring Program (OMP). In 2007, Dr. Richardson resigned her position as a Clinical Associate Professor of Pharmacy at Northeastern University's School of Pharmacy where she was responsible for teaching pharmacy students both in the classroom and in the DCI Boston dialysis unit. She is Director for Communications for the Division and is responsible for producing this Annual Report.

Mark J. Sarnak, MD, MS

Dr. Sarnak is the Associate Director of the Research Training Program in Nephrology. He is interested in cardiovascular epidemiology in CKD. His *research focuses* on traditional and non-traditional cardiovascular risk factors in CKD, aging and kidney disease, and cognitive function and CKD. Drs. Sarnak and Levey have undertaken the Cardiovascular Disease Pooling Project, pooling multiple NHLBI databases to evaluate the effect of kidney function and anemia on cardiovascular disease. Drs. Sarnak and Weiner collaborate with Drs. Marshal Folstein and Rosenberg to study the association of homocysteine, cognition and cerebrovascular disease in the homebound elderly. Drs. Sarnak and Menon are evaluating the impact of non-traditional risk factors for cardiovascular disease in CKD using databases from the MDRD Study. Dr. Sarnak is funded by the NIDDK and the National Institutes of Aging to perform these research projects. Dr. Sarnak's *clinical specialties* are in cardiovascular disease in patients with kidney disease, management of chronic kidney disease, dialysis, kidney transplantation, and kidney stones.

Lesley A. Stevens, MD, MS

Dr. Stevens's primary *research interests* are in epidemiology and outcomes related to CKD. She is the co-principal investigator of the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI), a collaborative effort to use pooled individual patient data to address central questions in the epidemiology of CKD, including developing improved glomerular filtration rate (GFR) estimation equations, using these equations to refine prevalence estimates for CKD from National Health and Nutrition Examination Survey, and evaluating changes in proteinuria as a surrogate marker for kidney disease outcomes in clinical trials. Dr. Stevens is the recipient of a K23 career development award to study issues related to kidney function and aging. Dr. Stevens is also the recipient of two other awards, the American Society of Nephrology American Specialty Professors (ASN-ASP) Junior Development Grant in Geriatric Nephrology and the DCI-Paul Teschan Research Fund. Both projects are designed to investigate the validity and reliability of novel ways to measure GFR, with particular focus in elderly patients. Dr. Stevens is also interested in research and *policy* related to implementation of CKD Guidelines. She is Program Director, Implementation in the NKF Center for Guidelines Development and Implementation. She works with NKF leadership and national organizations to implement CKD guidelines, including issues related to GFR estimation and revisions to diagnostic codes for kidney disease. She is also analyzing administrative data from a national managed care organization with the goal to assess the current levels of care provided to patients with and at risk for CKD. Dr. Stevens's *clinical interests* are general nephrology, detection and treatment of CKD, geriatric nephrology, HIV-associated kidney disease, and kidney stones. She is the Director for Quality Improvement for the Division.

Katrin Uhlig, MD, MS

Dr. Uhlig is the Nephrology Program Director of the NKF Center for Clinical Practice Guideline Development and Implementation at Tufts Medical Center. This Center is described in detail on page 59. Dr. Uhlig co-directs the evidence review teams for several guideline projects. In 2007, these were the Update of the KDOQI guideline on Anemia in Chronic Kidney Disease, the KDIGO guidelines on Hepatitis C in Chronic Kidney Disease, the KDIGO Guideline Mineral and Bone Disease in CKD, and the KDIOG Guideline on Care of the Transplant Recipient. Work on the latter two guidelines is ongoing. Dr. Uhlig provides consultation to the NKF on issues related to process of guideline development and methods of systematic review and critical literature appraisal. She also mentors and supervises fellows in the development of evidence-based clinical practice guidelines and related methods topics. She lectures and writes on CKD care and topics related to the development of evidence-based clinical practice guidelines. Additionally, she served as Co-Editor of the *American Journal of Kidney Diseases*. Dr. Uhlig's *clinical specialty* is in the care of patients with CKD and those with kidney stones.

Daniel E. Weiner, MD, MS

Dr. Weiner is the recipient of a K23 Career Development Award from the NIDDK to investigate cerebrovascular disease and cognitive impairment in individuals with CKD. His *research* work includes evaluating the effect of traditional and non-traditional cardiovascular disease risk factors on stroke and other cardiovascular disease outcomes, examining the applicability of current cardiovascular disease prediction equations to the CKD population, developing new prediction equations for use in CKD, and evaluating the burden of and risk factors for cognitive impairment and cerebrovascular disease in elderly individuals with CKD as well as in hemodialysis patients. Dr. Weiner is the Associate Medical Director of DCI Boston. In this role, he is working to enhance care for dialysis patients and dialysis education at Tufts Medical Center. As of October 2006, Dr. Weiner assumed the role of Deputy Editor of the *American Journal of Kidney Diseases*. In this position, working with a dedicated staff, he is responsible for many of the day-to-day operations of the *Journal*, and has endeavored to develop new content while maintaining current excellence. Dr. Weiner's *clinical specialties* are general nephrology and dialysis, internal medicine, and cardiovascular disease in patients with CKD.

Division Support Staff

Members of the support staff sustain the Division's administrative, clinical, and research operations. Anna M. Suffoletta MBA, Business Operations Manager III, supervises 38 personnel within the Division (36 onsite and 2 offsite employees). The support personnel are diverse and each staff member brings specialized knowledge and skills to their respective positions. All administrative and clinical staff functions as teams supporting operations and each other. Personnel are cross-trained, enabling each team to support day-to-day operations and the other, when the need arises. The ambulatory support staff also works very closely with our physicians, fellows, staff nurse, physician assistant and transplant nurse practitioners to provide high-quality customer service to our patients. Ms. Suffoletta also oversees the Division's Fellowship program, currently staffed as 13 Clinical and Clinical Research/Training Grant full-time equivalents.

Administrative Support

Staff Member	Position
Lorna Davies	Administrative Assistant III
Mairead Kelly	Administrative Assistant II
Neva Parsons	Administrative Assistant III
Open Position	Office Assistant (full-time)

Ambulatory Support, Kidney and Blood Pressure Center

Staff Member	Position
Robyn Bluestein MPH	Ambulatory Supervisor
Katherine Colon	Phlebotomist / Medical Assistant
Tasha Fleming	Patient Service Coordinator II
Helen Freedman	Patient Service Coordinator III
Debbie Mitchell-Dozier, RN	Staff Nurse
Dai Morehouse	Patient Service Coordinator III
Jennifer Trignano, PA-C	Physician Assistant

Pratt Medical Group Nephrology and Hypertension, Concord, MA

Staff Member	Position
Julie Bryant	Medical Assistant
Julie Flynn	Patient Service Coordinator II
Gail Seaburg-Grendon	Patient Service Coordinator II

American Journal of Kidney Diseases Editorial Office Staff

Staff Member	Position
David Boffa	Editorial Assistant
Brendan Davis	Editorial Assistant
Nijsje Dorman, PhD	Managing Editor
Elizabeth Frank	Associate Managing Editor
Roxana Slavcheva	Office Assistant (part-time)

Research Support (i.e., Administrator, Assistants, Associates, and Statisticians)

Staff Member	Position
Robert Bruce	Research Assistant II
Kimberly Clayton, MPH	Research Assistant II
Caren DeMello	Research Associate II
Julie Driggs, RN	Clinical Research Associate IIA
Amy Earley	Research Assistant II
Mohammad Iraniha	Research Assistant I
Lydje Lahens	Senior Research Administrator
Lijun Li	Research Assistant II
Alice Martin, RN	Research Nurse
Danielle Nicolazzo	Research Assistant II
Kruti Pandya	Statistician/Research Associate II
Rebecca Persson	Research Assistant II (per diem)
Heidi Pound	Research Assistant II
Darya Rudym	Research Assistant II
Kimberly Seefeld	Statistician/Research Associate II
Gertrude (Peachy) Simon, RN	Clinical Research Associate IIA
Matthew Wright	Research Assistant II
Lucy Zhang	Statistician / Research Associate II
Open Positions	Division Research Administrator Research Assistant II Statistician/Research Associate II

Faculty and Staff Changes in 2007

Faculty Changes

- Dr. Gilbert was promoted to Associate Professor of Medicine at TUSM.

Staff Changes

Clinical

- In November 2007, Robyn Bluestein, MPH transitioned into the Division's new clinical support position of Ambulatory Supervisor from Research Assistant II.
- Physician Assistant Jennifer Trignano was hired to provide care to patients in the Kidney and Blood Pressure Center.

Research

- Several new Research Assistants (Samuel Abariga, Robert Bruce, Kimberly Clayton, MPH, Mohammad Iraniha, Danielle Nicolazzo, Heidi Pound, Daryn Rudym, and Matthew Wright) were hired to support the Division's growing

research enterprise. Kimberly Seefeld joined the Division as a Statistician/Research Associate II.

American Journal of Kidney Diseases

- Brendan Davis joined the *American Journal of Kidney Diseases* staff as an Editorial Assistant.

2007 Administrative Accomplishments

In 2007, the Division's budgetary and financial processes became fully supported by the Physicians of Tufts-NEMC (PT-NEMC) physician's group. As a result, internal procedures improved allowing for closer monitoring of billing activities and collection rates.

Additional Administrative Accomplishments

Service

Members of the Division are involved in service on local, national and international levels.

Service to Tufts Medical Center

- Dr. **Gilbert** serves on the Internal Medicine Residency Clinical Competency Committee; the Graduate Medical Education Committee; the Internal Medicine Residency Curriculum Committee; and the Teaching Task Force.
- Dr. **Harrington** has been a member of the Board of Trustees at Tufts Medical Center since 1995. He is a current member of the Executive Committee and has been since 1997, along with being a member of the Professional Standards Committee since 1999, and a member of the Audit Committee since 2003.
- Since 2003, Dr. **Kausz** has been a member of the Human Investigations Review Committee (i.e., Institutional Review Board) at Tufts Medical Center.
- In 2007, Dr. **Menon** completed service as a member of the Human Investigations Review Committee (i.e., Investigational Review Board)
- Dr. **Menon** is a member of the Clinical Research Portal, a collaborative effort with the Institute of Clinical Research and Health Policy Studies. This resource has been created to assist investigators in the design, implementation, and analysis of their research projects.

- In 2007, Dr. **Meyer** concluded his service as chair of the Health Information Committee. He had served on this committee since 1993.
- Dr. **Meyer** also concluded several years of service as a member of the Care Review and Patient Safety Committee that is responsible for overseeing hospital-wide quality improvement projects.
- Dr. **Miskulin** serves on the Hospital Pharmacy and Therapeutics Committee, a policy setting and monitoring committee of the medical staff responsible for the appropriate use of drugs and is co-facilitator on the Performance Outcome Team on Communication about Medications.
- Dr. **Madias** was a member of the Neurology Chair Search Committee at Tufts Medical Center.
- Dr. **Perrone** continues to serve as the United Network for Organ Sharing (UNOS) certified Transplant Physician at Tufts Medical Center.
- Dr. **Perrone** serves on the Information Systems Clinical Working Group. This committee provides clinician input regarding development of the hospital's clinical systems. It is currently focusing on implementation of Soarian, the new hospital-wide clinical information interface developed by Siemens. Dr. **Meyer** concluded his long-term service to this committee in 2007.
- Drs. **Sarnak, Gilbert, and Weiner** are members of the Tufts Medical Center Internal Medicine Residency Selection Committee.
- Dr. **Stevens** is a member of the Care Review and Patient Safety Committee.

Service to TUSM/Sackler School of Graduate Biomedical Sciences

- Drs. **Balakrishnan** and **Jaber** are members of the Scientific Affairs committee at TUSM.
- Drs. **Gilbert** and **Gordon** are members of the MedFoundations Working Group tasked with redeveloping the preclinical medical education.
- In 2007, Dr. **Jaber** was a member of the judging panel for the Charlton Poster Competition and also a member of the Scientific Review Committee for the Earl P. Charlton Fund Research Award at TUSM.
- Drs. **Levey** and **Sarnak** are members of the Clinical Research Advisory Committee at the Sackler School of Graduate Biomedical Sciences at Tufts University.

- Dr. **Liangos** serves as a member of the admissions committee at TUSM.
- Dr. **Meyer** continues to serve as a member of the Compassionate Care Faculty Advisory Group at TUSM.
- Dr. **Perrone** serves as the representative of the Tufts Medical Center Department of Medicine on the TUSM Faculty Senate and in 2007 was elected as President of the Faculty Senate.
- Dr. **Sarnak** is a member of the Scientific Advisory Committee of the Clinical Research Center.
- Dr. **Weiner** is a member of the Curriculum Committee at TUSM.

Service to Professional Organizations

In addition to providing local service, Division members are actively involved in providing service to our professional organizations on the local, national, and international levels.

- Dr. **Harrington** is a member of the Advisory Panel on Health Care Delivery for the Association of American Medical Colleges and has been since 1998.
- Dr. **Harrington** is a member of the Board of Directors at the National Kidney Foundation.
- Since 2003, Dr. **Kausz** has been a member of the National Kidney Foundation's Nephrology "Tool Kit" Development Committee.
- Since 2002, Dr. **Kausz** has been a member of the Clinical Research Committee, of the National Kidney Foundation.
- Dr. **Levey** serves on the Board of Directors and Drs. **Gilbert**, **Meyer** and **Perrone** serve as members of the Medical Advisory Board of the NKF Chapter of MA, RI, NH, and VT.
- Dr. **Levey** is a member of the NKF Scientific Advisory Board.
- Dr. **Jaber** is a member of the Kidney Disease Outcomes Quality Initiative (KDOQI) Advisory Board of the NKF. He has held this position since 2004. He is also a member of the Council on Renal Nutrition Research Grant Selection Committee for the National Kidney Foundation.

- Dr. **Jaber** is a member of the Renal Disease & Detoxification Committee and a member of the Dialysis Research Consortium Committee within the Association for Advancement of Medical Instrumentation (AAMI).
- Dr. **Madias** is a member of the Scientific Advisory Board for Speedel Experimenta Ltd in Basel, Switzerland. He is also a member of the Board of Directors for Arisaph Pharmaceuticals in Boston, MA.
- Dr. **Menon** was an abstract reviewer for the 2007 American Society of Nephrology Annual Meeting.
- Dr. **Meyer** is a member of the Board of Directors and of the Executive Committee of the End-stage Renal Disease Network of New England.
- Dr. **Meyer** is a member of the Board of Directors of the Forum of End-Stage Renal Disease Networks. In 2007, he was appointed as the Forum Board representative to the United States Renal Data System External Advisory Committee. The Forum is a not-for-profit organization that comprises the 18 regional End-Stage Renal Disease Networks that are responsible for coordinating care for patients with kidney failure throughout the United States. The Forum's mission is to provide support to the ESRD Networks in promoting and improving the quality of care of ESRD patients. Their mission is achieved through education, and the collection, analysis, and dissemination of data and information.
- Dr. **Perrone** continued his tenure as Chairman of the Scientific Advisory Committee of the Polycystic Kidney Disease Foundation.
- Dr. **Richardson** was an abstract reviewer for the American College of Clinical Pharmacy's Spring Practice and Research Forum.
- Dr. **Sarnak** is a continuing member of the American Society of Nephrology's Clinical Science Committee.
- Dr. **Sarnak** is a member of the National Kidney Disease Education Program (NKDEP) Evaluation Committee and has been since 2005.
- Dr. **Sarnak** is a member of the Cardiovascular Health Study (CHS) Renal Work Group.
- Dr. **Sarnak** was an abstract reviewer for the American Society of Nephrology 2007 Annual Meeting.
- Dr. **Stevens** is a member of the NKF's Kidney Disease Early Evaluation Program (KEEP) Steering Committee and also is the co-chair of the Clinical Oversight Committee of KEEP.

Patient Care

The Division provides diagnostic and treatment expertise for patients with acute and chronic kidney disease, including kidney failure, fluid and electrolyte disorders, and all forms of hypertension. The staff has expertise in evaluation and treatment of nephrotic syndrome, glomerulonephritis, diabetic kidney disease, polycystic kidney disease, urinary tract infections, urinary reflux and obstruction, kidney stones, and all other kidney diseases. Special diagnostic and treatment modalities include glomerular filtration rate estimation, kidney biopsy, immunosuppression, percutaneous transluminal renal angioplasty and stenting, low protein diets, hemodialysis, peritoneal dialysis, continuous venovenous hemofiltration, vascular access monitoring and repair, and kidney transplantation.

All our clinical programs continue to expand, offering care for a wide range of complex and complicated issues associated with acute and chronic kidney disease. The following section highlights our clinical programs.

2007 New Clinical Initiatives

Outpatient

- The KBPC has begun offering its patients intravenous infusions of iron for refractory iron deficiency anemia. Intravenous corticosteroid infusions are also available for treatment of acute transplant rejection, glomerulonephritis, or other autoimmune conditions. These services have facilitated the provision of intensive medical therapy without the need for hospital admission.

Continuing Clinical Initiatives

Outpatient Program Descriptions

Kidney and Blood Pressure Center

Outpatient clinical activities take place primarily in the KBPC, directed by Dr. **Gilbert**. There are currently nine half-day a week clinics staffed by Drs. **Balakrishnan, Gilbert, Harrington, Kausz, Khan, Kuhlik, Levey, Meyer, Miskulin, Perrone, Sarnak, Stevens, and Uhlig**.

The KBPC emphasizes a multi-disciplinary approach to kidney disease. Collaboration with the Division of Transplant Surgery, Department of Urology, the DCI outpatient dialysis unit, and the Frances Stern Nutrition Center improve the quality of care delivered. The KBPC specializes in the diagnosis and management of CKD, hypertension, glomerular diseases, kidney transplantation, kidney stones, and

peritoneal dialysis. Ambulatory blood pressure monitoring services are offered by the KBPC. Recently, a multidisciplinary Kidney Stone Clinic began coordinating nephrology, surgery, radiology, and nutrition expertise.

Many clinical studies on CKD occur in the clinic, including studies of polycystic kidney disease, lupus nephritis (in conjunction with the Division of Rheumatology), transplant immunosuppression, cardiovascular disease in transplantation, and genetic predisposition to progression.

Home Hemodialysis

The DCI home hemodialysis program uses the NxStage system. Our experience with this modality has been quite good and we are actively endeavoring to expand our home hemodialysis program. Jane Maxim and Shue-Year Hwang provide dedicated nursing care for the home hemodialysis program as well as the peritoneal dialysis program.

Center for Polycystic Kidney Disease

The Center for Polycystic Kidney Disease at Tufts Medical Center opened in 2006. This multidisciplinary clinic offers comprehensive, coordinated, care for patients with polycystic kidney disease. The Center's physicians are internationally recognized experts in treating and managing the complications of PKD. One to two new patient consultations are seen on a biweekly basis. Areas of expertise include provision of coordinated care for chronic kidney disease including dialysis and transplantation, treatment of hypertension, and evaluation and management of the complications of liver and kidney cysts including chronic pain, kidney stones, and cardiovascular issues including intracranial aneurysms. Multidisciplinary consultations are provided with Gennaro Carpinito, MD, Urologist-in-Chief and Chairman, Department of Urology; Adel Malek, MD, Neurosurgeon; Richard Rohrer, MD, Chief, Transplant Surgery; Michael Tarnoff, MD, Associate Director, Minimally Invasive Surgery Center; Diana Bianchi, MD, Vice Chair for Research, Floating Hospital; and Laurie Demmer, MD, Chief, Genetics.

Kidney Transplant Program

Although all Division attending physicians in the KBPC see kidney transplant patients, the Division of Nephrology runs a specific Transplant Multidisciplinary clinic on Wednesday mornings. This clinic is staffed by Dr. **Perrone**, Medical Director of Kidney Transplantation, and also staffed by one of three Transplant surgeons, in rotation. Two nurse practitioner transplant coordinators also attend the clinic, one working with Dr. Perrone and one with the Transplant Surgeon. Consultation and interaction regarding new and long-term kidney transplant recipients, kidney transplant candidates, and kidney donors is easily and frequently accomplished. Another benefit of this joint activity is the facilitation of dialysis access planning and interventions. Dr. **Gilbert** also works closely with one of the transplant coordinators, seeing patients on Tuesday mornings in the KBPC.

Metabolic Bone Disease Program

Dr. **Khan** directs the Tufts Medical Center Metabolic Bone Disease Program. Program services include consultation for CKD-related bone disease and osteoporosis in patients not on dialysis, patients on dialysis, and kidney transplant recipients; bone biopsy; and follow-up treatment for CKD-related metabolic bone disease and osteoporosis.

Bone biopsy day surgery procedures more than doubled in 2007!

Over the last 2 years, more than 30 bone biopsies were performed on patients referred from our own dialysis units, CSEMC, the Greater Boston Area, and New Hampshire. Referred patients were diverse and included those with early stages of CKD with osteoporosis, Stage 5 CKD requiring dialysis, and kidney transplant recipients with complicated metabolic bone disease. Dr. Khan works in collaboration with the Endocrinology and Metabolic Bone Disease Department at Mayo Clinic located in Rochester, MN where all bone biopsy samples are prepared and evaluated. The bone biopsy results had a significant impact on treatment decisions.

Kidney Stone Program

In 2006, the Kidney Stone Clinic was initiated as a new clinical service within the KBPC. Drs. **Miskulin**, **Stevens**, and **Uhlig** in collaboration with Dr. Dierks, Division of Urology, and Jessica Lane, Francis Stern Center for Nutrition, offer comprehensive and coordinated care for patients with kidney stones. Outpatients are seen in the kidney stone clinics on Monday and Tuesday afternoons.

Outpatient Dialysis

Outpatient hemodialysis treatments increased by more than 11% in the DCI unit at Tufts Medical Center and by more than 13% at the DCI unit in Ball Square!

At Tufts Medical Center, Drs. **Meyer** and **Weiner** are the Director of Dialysis Services and Associate Director of Dialysis Services, respectively. The DCI Boston outpatient hemodialysis unit operates 21 stations; the unit has physical capacity for 24 stations. Contained within 3 contiguous floors are the hemodialysis unit and Drs. **Meyer's** and **Weiner's** offices, the Division's research and administrative offices, and the KBPC. Physical proximity makes frequent patient contact practical. Debbie Van Allen, RN, MS,

who joined the dialysis program in 1976, manages the outpatient dialysis program. Table 3 lists the dialysis programs affiliated with the Division of Nephrology.

Table 3: Outpatient Hemodialysis Units Affiliated with Tufts Medical Center

Location	Dialysis Unit	Medical Directors
Tufts Medical Center	DCI Boston	Klemens B. Meyer MD, Medical Director Daniel E. Weiner MD, Associate Medical Director
Somerville	DCI Ball Square	Michael B. Cohen MD, Co-Medical Director Anthony Z. Dash MD, Co-Medical Director Klemens B. Meyer MD, Medical Director for Home Dialysis
Concord	DCI Walden Pond	Klemens B. Meyer MD, Medical Director Andrei Kouznetsov MD, Associate Medical Director Valerie R. Price MD, Associate Medical Director

Peritoneal dialysis and home hemodialysis services are provided the DCI Ball Square Home Dialysis Program, which continues to grow. Jane Maxim, RN, a former Tufts Medical Center dialysis nurse with 30 years' experience in home dialysis, is the nurse manager. Carla Rice, RN, an experienced peritoneal dialysis nurse, was recruited to join the program this year. In December 2007, the peritoneal dialysis program was one of four programs recognized nationally by Baxter Healthcare for quality of care.

Outpatient Volume

Table 4 demonstrates outpatient volume at Tufts Medical Center and the Pratt Medical Group Nephrology and Hypertension in Concord. Table 5 shows the number of outpatient dialysis visits by Division-affiliated physicians. All volume numbers are for the Tufts Medical Center and DCI fiscal year 2007, which ran from October 2006 to September 2007, unless otherwise stated.

**Division physicians at affiliated,
non-DCI dialysis units made nearly
900 outpatient dialysis visits in 2007.**

Table 4: Comparison of Outpatient Activity: Fiscal Year 2006 compared to 2007

Institution and Location	Fiscal Year		Percent Change %
	2006	2007	
Tufts Medical Center			
Kidney Blood Pressure Center	4,899	4,900	Even
Pratt Medical Group Nephrology and Hypertension, Concord	1,437	1,489	3.6%
Dialysis Clinic, Incorporated			
Boston (Tufts Medical Center) hemodialysis treatments	14,234	15,887	11.6%
Ball Square hemodialysis treatments	10,399	11,758	13.1%
Ball Square home-dialysis patients*	19	21	10.6%
Walden Pond dialysis treatments	7,217	7,075	-2%

* Total number of PD and home HD patients for calendar year 2007

Table 5: 2007 Outpatient Dialysis Visits by Division Physicians at Affiliated Units

Dialysis Unit	Numbers of Visits
Cambridge	57
Caritas St. Elizabeth's Medical Center	220
Lawrence Memorial	115
Malden	31
Saugus	177
Stoneham	296
Woburn	10

Table 6: 2007 Outpatient Ambulatory Visits by Division Physicians at Affiliated Units

Hospital-based Ambulatory Clinic	Numbers of Visits
Caritas St. Elizabeth's Medical Center	226
Lawrence Memorial	539
Melrose Wakefield	741

Inpatient Program Descriptions

Nephrology Inpatient Services

Every 14 days, the Division's nephrologists rotate responsibility for care of patients hospitalized on the inpatient nephrology service at Tufts Medical Center. The nephrology and dialysis staff work closely with the nursing staff on North 7, the inpatient nephrology floor, to maintain continuity of care. In addition, all Division attending physicians participate in the inpatient nephrology consultation service. The consultation service responds to over 70 requests monthly for evaluation of acute kidney injury, chronic kidney disease, fluid and electrolyte disorders, glomerulonephritis, hypertension,

and solid organ and bone marrow transplant-related issues. The nephrology consultation service also provides expertise for all forms of renal replacement therapy, including but not limited to hemodialysis, peritoneal dialysis, continuous renal replacement therapy (CVVH and SCUF), and charcoal hemoperfusion. Under the supervision of staff physicians, Division fellows perform all temporary access procedures required for initiating hemodialysis, including femoral and central catheter insertions.

Kidney Transplantation

Dr. **Perrone** is the Medical Director and all Division attending physicians also participate in the Tufts Medical Center Kidney Transplant Program. A relatively high proportion of kidney transplants derive from related or unrelated living donors. Tufts Medical Center is also an active participant in the New England Program for Kidney Exchange (NEPKE) that has centralized the coordination of sharing by mismatched donor-recipient pairs so as to allow regional paired-donor exchanges. Patients who have received transplants are seen weekly in the KBPC in the initial months following the transplant, thereafter at increasing intervals. The transplant team at Tufts Medical Center has conducted more than 1000 kidney transplants.

Inpatient Dialysis

Inpatient hemodialysis is performed in the Floating 7 inpatient dialysis unit and in Tufts Medical Center intensive care units. Dr. **Meyer** is the Director of Dialysis Services and Dr. **Weiner** is the Associate Medical Director. Table 7 lists the numbers of treatments performed this year. Dialysis Clinic, Inc., the hospital's dialysis provider, assigns three nurses to perform these treatments on a routine basis, and additional staff as needed. Linda Courtemanche, RN manages the inpatient dialysis program, which she joined in 1986. The staff performs pediatric as well as adult hemodialysis. The program is organized with particular attention to patient flow; most of the patients receiving hemodialysis treatment are also undergoing many other tightly scheduled tests and procedures. Response time for emergency hemodialysis after hours is 45 minutes; during the day, treatments can be initiated even more quickly. The hemodialysis nursing staff also participate in the provision of continuous venovenous hemofiltration by intensive care unit nurses, setting up and troubleshooting the machines. In 2007, the program introduced the use of the NxStage System 1 for CVVH., replacing the Baxter BM-25.

Continuous Renal Replacement Therapy

Dr. **Perrone** is the Director of this program that provides continuous renal replacement therapies such as continuous venovenous hemofiltration (CVVH) and slow continuous ultra filtration (SCUF) in all intensive care units. These therapies are utilized with increasing success to support critically ill patients from other services who have developed acute kidney injury as a complication of their underlying illnesses, other treatments, or surgery. Introduction of citrate regional anticoagulation has markedly

improved the efficiency and efficacy of CVVH, thereby allowing its utilization in all intensive care units at Tufts Medical Center. Intraoperative SCUF is provided for patients with kidney failure who undergo liver transplantation. With the growth of solid organ and bone marrow transplantation, cardiac surgery, and oncology programs, increased utilization of continuous renal replacement therapies will be required.

**Days of CVVH treatments increased
by 20% in 2007!**

Inpatient Volume

All volume numbers are from the Tufts Medical Center and DCI fiscal year, October 2006 to September 2007, unless otherwise indicated. Inpatient activity is described in Table 7. Days of inpatient service at affiliated hospitals by Tufts Medical Center physicians are listed in Table 8.

Table 7: Comparison of Inpatient Activity: Fiscal Year 2006 Compared to 2007

Institution and Location	Fiscal Year		Percent Change
	2006	2007	
<u>Tufts Medical Center</u>			
Patient-days of service: Nephrology Consult and Ward Services	11,328	10,266	-9.8%
Patient-days of service: New England Sinai Satellite unit	282	195	-30.8%
Kidney transplants*	45	47	Even
Bone biopsy day surgery procedures	7	19	171%
<u>Dialysis Clinic, Incorporated</u>			
Inpatient hemodialysis treatments: Tufts Medical Center	2,689	2,453	-8.8%
Inpatient hemodialysis treatments: Emerson	168	259	54.2%
Days of CVVH treatments: Tufts Medical Center	583	701	20.2%

*Calendar year 2007

Table 8: 2007 Patient-days of Service at Affiliated Hospitals

Affiliated Hospitals	Days
Caritas St. Elizabeth's Medical Center	667
Emerson Hospital	909
Kindred Hospital	650
Lawrence Memorial Hospital	1,073
Melrose Wakefield Hospital	2,377
Whidden Hospital	148

Division Quality Improvement

The division remains committed to improving the quality of care both for our patients and patients throughout the institution. Dr. **Stevens** is Director for Quality Improvement for the Division.

Morbidity and Mortality Rounds

This past year, Morbidity and Mortality rounds continued in the Division. These rounds are held approximately six times a year and provide the opportunity for fellows and attending physicians to discuss issues related to problems in knowledge or delivery of care that lead to patient poor outcomes, with the goal to develop systems to avoid these problems in the future. This year, the focus of the rounds has been on quality improvement activities. Fellows have been responsible for identifying a target behavior and measuring the appropriateness of delivered care.

Community Service/Patient Education

Division staff members actively participate in community projects, particularly in neighboring Chinatown. In addition to health screenings, the Division has focused on education for health care providers, patients, and the general community. Please refer to Table 9 for a detailed listing of events.



- Division members participated in 3 NKF-sponsored Kidney Early Evaluation Program (KEEP) screenings this year. KEEP is a comprehensive screening program that includes a health risk questionnaire, blood pressure measurement, blood and urine tests, and individual consultation with a physician to discuss the patient's risks for diabetes, hypertension, and CKD. To celebrate World Kidney Day, a KEEP was held in Boston on March 8 and 75 people were screened for CKD at Boston's City Hall. The largest KEEP screening this year was held at the DIABETES EXPO FAIR at the Seaport World Trade Center in South Boston during which time 115 people were screened for kidney disease!

- Division members organized Team Kidney Care to walk to support the National Kidney Foundation in May. More than 25 staff, family and friends participated in the 2007 NKF Zoo Walk and \$3,350 was raised for the NKF.



Team Kidney Care (Division members and their families) at the 2007 NKF Zoo Walk.

- In September, Division members also participated as the Tufts Medical Center Team Kidney Care at the Walk for Polycystic Kidney Disease and raised money to support Polycystic Kidney Disease research.
- Dr. **Perrone**, Director of the Polycystic Kidney Disease Center, gave several educational presentations at PKD meetings.

**In 2007, Division members
participated in community events
that screened over 650 people for kidney disease!**

Table 9: 2007 Community Service Events

Date	Type	Community	Location	Partner(s)	Attendees
3/17/07	NKF KEEP at the Diabetes Expo	Diverse	Seaport Convention Center South Boston, MA	NKF	115
2/25/07	BP Screening at Asian New Year Festival	Chinese, Diverse	Quincy High School Quincy, MA	Multiple organizations	45
3/8/07	World Kidney Day NKF KEEP	Diverse	City Hall Boston, MA	NKF	97
6/16/07	NKF CKD Informational Booth	Diverse	Northeastern University Boston, MA	Center for Information and Study on Clinical Research	150
6/23/07	NKF CKD Risk Assessment	Diverse	Hynes Convention Center Boston, MA	NBC Health Expo	250
7/21/07	NKF KEEP	American Indians	Brookfield, MA	NKF	30

Date	Educational Lectures	Lecturer	Location	Audience	
3/10/07	Clinical Trials in Polycystic Kidney Disease (PKD)	Ronald Perrone, MD	New York City, NY	Greater NY/NJ PKD Foundation Meeting	80
4/15/07	Research Update, Polycystic Kidney Disease	Ronald Perrone, MD	Waltham, MA	PKD Foundation, Northeast Chapter	125
6/22/07	What Every Patient Should Know about PKD	Ronald Perrone, MD	Orlando, FL	18 th Annual Conference on PKD, PKD Foundation	250
6/23/07	Living Organ Donation	Ronald Perrone, MD	Orlando, FL	18 th Annual Conference on PKD, PKD Foundation	250

Patient Care Awards and Honors

- In December, The NKF of MA, RI, NH & VT informed Jean **McCorry**, RN and Alice **Martin**, RN that they had been selected as the recipient of the 2007 Gift of Life Outstanding Nurse In Nephrology and Volunteer of the Year Awards, respectively. Jean and Alice were honored and recognized at the annual Gift of Life Awards Dinner. The event took place on Thursday, January 31, 2008 at the Sheraton Needham Hotel.

- Dr. **Perrone** received the prestigious 2007 Boston Gift of Life Outstanding Physician - Nephrology Award from the National Kidney Foundation of MA, RI, NH and VT. The Gift of Life Award recognizes outstanding service to the NKF and commitment to the kidney and transplantation community. The Gift of Life Awards Dinner was held on Thursday, January 25, 2007 at the Quincy Marriott Hotel. Forty members of the Division and Department of Medicine joined Dr. Perrone at the award dinner.



Dr. Perrone after receiving the Gift of Life Outstanding Physician – Nephrology Award

- The peritoneal dialysis program was one of four programs nationwide to receive an award from Baxter Healthcare for its quality of care. The program received of a plaque in honor of the recognition and is designated as a STAR Center. Baxter's Pursuit of Excellence program set performance benchmarks in several categories, including nurse to patient ratios, ongoing education and outstanding clinical care. Peritoneal dialysis facilities that achieved or exceeded the benchmarks over a six-month period were recognized.
- Dr. **Sarnak** received the Oliver Smith Award for Patient Care.

Research

Research conducted in the Division is focused on solving clinical problems. Each research project has a domain expert, in most cases a nephrologist, a methods expert, and collaborators from other disciplines. The location of the Division offices, the KBPC, and the DCI Boston dialysis unit on 3 adjacent floors in the same building has been a major reason for the Division's success in clinical research.

The Division's primary focus is on clinical research in CKD. However, there are a growing number of projects in acute kidney injury. Areas of emphasis are listed in

Table 10.

For each of the last 3 years, funding from both federal and industry sources has increased substantially.

Table 10: Areas of Research Emphasis in the Division

Area of Emphasis	Research Examples
Epidemiology of CKD	<ul style="list-style-type: none"> • Definition and staging of CKD • Prevalence in US population and subgroups defined by demographic and clinical characteristics
Assessment of kidney function	<ul style="list-style-type: none"> • Development and validation of GFR prediction equations • Development of a national program for standardization of serum creatinine assay
Interventions to slow progression of kidney disease	<ul style="list-style-type: none"> • Secondary analysis of studies of dietary modification • Anti-hypertensive agents and blood pressure goals • HALT-PKD clinical trial • TEMPO $\frac{3}{4}$ (Tolvaptan) clinical trial
Clinical and epidemiological studies of nutrition in CKD	<ul style="list-style-type: none"> • Secondary analysis of studies of dietary modification in CKD • Clinical trials of strength training in CKD • Secondary analysis of obesity in CKD
Bone disease in CKD	<ul style="list-style-type: none"> • Prevalence of adynamic bone disease in bone biopsies from dialysis patients
Implementation of clinical practice guidelines in CKD	<ul style="list-style-type: none"> • Demonstration projects in managed care organizations • Clinical trials in CKD populations
Epidemiology of CVD in CKD	<ul style="list-style-type: none"> • Studies of the burden of CVD and CVD risk factors in CKD • CKD as a risk factor for CVD
Clinical and epidemiological studies on cerebrovascular disease in CKD	<ul style="list-style-type: none"> • Anti-hypertensive therapy to prevent stroke recurrence
Clinical and epidemiological studies on cognition in CKD	<ul style="list-style-type: none"> • Prevalence and risk factors for cognitive impairment in CKD
Epidemiological studies on optimal care for kidney failure	<ul style="list-style-type: none"> • Timing of initiation of dialysis • Treatments for anemia, malnutrition, metabolic bone disease • Utilization of preventive services
Clinical studies of effects of dialysis modality and dose	<ul style="list-style-type: none"> • HEMO Study • CHOICE Study • Daily dialysis trials
Clinical and translational studies on mediators of inflammation and oxidative stress in kidney disease	<ul style="list-style-type: none"> • Leukocyte function and apoptosis • Iron therapy, infection, and oxidative stress • Genetic factors influencing outcomes in acute and CKD
Quality management in dialysis networks	<ul style="list-style-type: none"> • Development of information systems • Methods for assessment of quality of life, patient satisfaction and comorbidity

Clinical studies of immunosuppression and infection in dialysis and kidney transplantation
 Epidemiological studies of CKD after kidney transplantation
 Polycystic kidney disease

- Relationship of HCV, CMV, bacteremia to immunosuppressive drug regimens, iron therapy
- Complications after kidney transplantation
- Barriers to care
- Epidemiological studies of the morbidity and mortality of extrarenal and renal complications of ADPKD after ESRD
- Clinical trials to slow kidney disease progression in ADPKD
- Cardiovascular disease in ADPKD
- Endothelial function in ADPKD
- Development of computerized quality of life assessments - CKD-CAT
- Induction and maintenance of remission

Patient-based assessments

Lupus Nephritis

Total Amount and Type of Research Awards

Figure 1, Table 11, and Table 12 demonstrate the increasing numbers and dollars of research awards received by Division members.

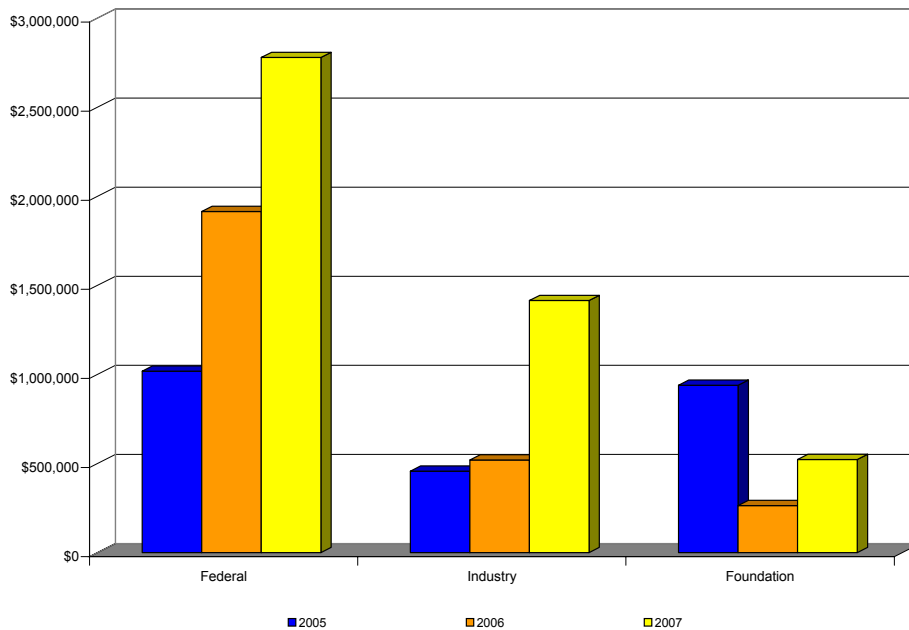


Figure 1: Division of Nephrology Research Awards 2005-2007, by type

Table 11: New Research Awards Received in 2007

Principal Investigator	Award Source	Type of Award	Title	Study Length
Dr. Alam	NKF of Canada	Foundation	Somatic Mitochondrial DNA Mutations and Mitochondrial Dysfunction in Chronic Kidney Disease: A Biomarker of Accelerated Aging?	2 years
Dr. Perrone	Parexel International, LLC	Industry	A Phase 3, Multi-center, Double-blind, Placebo-controlled, Parallel arm Trial to Determine Long-term Safety and Efficacy of Oral Tolvaptan Tablet Regimens in Adult Subjects with Autosomal Dominant Polycystic Kidney Disease.	
Dr. Rao	NIH/NIDDK	Federal	Mitochondrial injury and Anemia in Elderly Patients with CKD	2 years
Dr. Sarnak	NIH/NHLBI University of Washington NIH/NIDDK	Federal Subcontract	Mineral Metabolism and Cardiovascular Risk among Older Adults	3 years
		Federal	Chronic Kidney Disease, Vascular Disease and Aging	5 years
Drs. Sarnak and Menon	Tap Pharmaceutical Products, Inc.	Industry	Does Uric Acid Promote Progression of Kidney Disease and Development of Cardiovascular Disease in Patients with Chronic Kidney Disease?	1 year

Table 12: Ongoing Awards Received Prior to 2007

Principal Investigator	Award Source	Type of Award	Title	Amount \$	Study Length
Dr. Balakrishnan	NIH/NIDDK	Federal K08	Hemodialysis and Oxidative Stress	\$606,251	5 years
	National Kidney Foundation	Foundation	TGF-beta 1 and Interleukin-6 Gene Polymorphisms in CKD	\$150,000	3 years
	NIH/NIDDK University of New Mexico	Federal Subcontract	Cytokine Gene Polymorphisms in the CRIC Cohort	\$132,940	5 years
Dr. Khan	Amgen, Inc.	Industry	Evaluation of Comorbidity	\$50,000	2 years
	Abbott Laboratories	Industry	Is Secondary Hyperthyroidism Associated with Higher Resource Utilizations Among Patients with CKD?	\$253,063	1 year
Dr. Levey	NIH/NIDDK	Federal U01	Chronic Renal Disease-Individual Patient Meta Analysis	\$5,159,078	9 years
	NIH/NIDDK	Federal T32	Epidemiology, Clinical Trials and Outcomes Research	\$2,438,804	10 years
	NIH/Fogarty	Federal R03	Hypertension in the Pakistani Population	\$110,880	4 years

	National Kidney Foundation	Foundation	NKF Center for Clinical Practice Guideline Development and Implementation	\$2,912,293	5 years
	Amgen, Inc.	Industry	Trial to Reduce Cardiovascular Events with Aranesp Therapy	\$333,615	6 years
Dr. Menon	NIH/NIDDK	Federal K23	Novel Cardiac Risk Factors and Endothelial Function in Chronic Kidney Disease	\$779,700	5 years
	Satellite Healthcare	Foundation	Endothelial Function in Early Stage Polycystic Kidney Disease	\$150,000	3 years
	PKD Foundation	Foundation	Endothelial Cell Dysfunction In Polycystic Kidney Disease	\$195,000	3 years
Dr. Meyer	NIH/NIDDK	Federal SBIR	Computerized Adaptive Testing in Chronic Kidney Disease		2 years
Dr. Miskulin	Satellite Healthcare	Foundation	Risk-Adjusting Clinical Performance Measures for Quality Assessment Program in Dialysis Populations	\$150,000	4 years
	NIH/NIDDK	Federal K23	Case-Mix and its Effects on Quality Indicators in ESRD	\$628,880	5 years
Dr. Perrone	NIH/NIDDK	Federal U01	Polycystic Kidney Disease Clinical Trials Network	\$2,303,228	7 years
Dr. Rao	NIH/NIDDK	Federal K23	TGF-Beta 1 and PAI-1 Genotypes in CKD	\$649,350	5 years
	NIH/NIA	Federal R21	Somatic Mitochondrial Injury and Anemia in Elderly Patients with CKD	\$275,000	2 years
Dr. Sarnak	NIH/NIDDK	Federal R01	Does Kidney Function Determine Aging Success?	\$1,262,024	4 years
	NIH/NIDDK	Federal R21	Cognition and Vascular Disease in Dialysis Patients	\$447,510	2 years
	NIH/NIDDK	Federal R21	Cardiac Risk Factors in Chronic Kidney Disease	\$448,250	2 years
Drs. Sarnak and Weiner	Amgen, Inc.	Industry	CKD in Pooled Population	\$200,000	2 years
Dr. Weiner	NIH/NIDDK	Federal K23	Kidney Disease, Stroke and Cognitive Impairment	\$643,234	5 year

2007 Division Publications

A total of 79 publications were authored and/or co-authored by Division members in 2007. An asterisk beside a name indicates a trainee as an author.

**The number of Division publications
increased by 33% in 2007.**

The following is a listing of the Division's 2007 publications:

1. Adrogué HJ, **Madias NE**. Sodium and potassium in the pathogenesis of hypertension. *N Engl J Med* 2007;356:1966-78.
2. Adrogué HJ, **Madias NE**. Chapter 14 - Respiratory Acidosis, Respiratory Alkalosis, and Mixed Disorders. In: *Comprehensive Clinical Nephrology*. Feehally J, Floege J, Johnson RJ, eds. 3rd ed. Philadelphia: Mosby, 2007:167-80.
3. **Balakrishnan VS, Rao M**. Genetics and reverse epidemiology among patients on chronic hemodialysis. *Semin Dial* 2007;20:570-6.
4. **Bansal N***, Tighiouart H, **Weiner D**, Griffith J, **Vlagopoulos P***, Salem D, Levin A, **Sarnak MJ**. Anemia as a risk factor for kidney function decline in individuals with heart failure. *Am J Cardiol* 2007;99:1137-42.
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77. **Weiner DE**. Causes and consequences of chronic kidney disease: implications for managed health care. J Manag Care Pharm 2007;13(3 Suppl):S1-9.
78. **Weiner DE**, **Sarnak MJ**. Chronic kidney disease and cardiovascular disease: a bi-directional relationship? Dial Transplant 2007;36:113-20.
79. Weinhandl ED, **Rao M**, Gilbertson DT, Collins AJ, Pereira BJ. Protective effect of intravenous levocarnitine on subsequent hospitalization among prevalent hemodialysis patients, 1998 to 2003. Am J Kidney Dis 2007;50:803-12.

Research Awards and Honors

- During the Caritas Annual Research Day, Dr. **Liangos** won a second place award in the clinical and translational research category.

- Dr. **Rifkin** was a recipient of the Women in Nephrology Travel Grant Award which allowed her to attend the American Society of Nephrology professional development workshop.
- Dr. **Sarnak** is a grant reviewer for the National Institutes of Aging (NIA) Loan Repayment Program.

Education

The Division is committed to education. Local and national initiatives involve all members of the Division. National efforts stem largely from leadership and participation in basic and clinical research, service to national organizations and boards that establish standards in clinical practice and educational testing, and speaking engagements at local, national, and international conferences. Affiliations with TUSM, TUSDM and the Friedman School of Nutrition Science and Policy are the focus of most of our local education initiatives. Table 13 and Table 14 list ongoing teaching initiatives by Division members.

Division members teach at 6 schools including:

Tufts University School of Medicine
Tufts University School of Dental Medicine
Friedman School of Nutrition Science and Policy
Sackler School of Graduate Biomedical Sciences
The Francis Stern Nutrition Center at Tufts Medical Center
Boston University

New Teaching Initiatives in 2007

Graduate-level Initiatives

- Dr. **Gilbert** developed a 4-part clinical nephrology series for all 3rd year medical students doing their Internal Medicine Clerkship at Tufts Medical Center. The four 1-hour lunchtime sessions cover the topics of fluid and electrolytes, acute kidney injury, chronic kidney disease, and acid/base disorders. The purpose of the sessions is to demonstrate the clinical applications of renal physiology and pathophysiology. The nephrology series has been very well received and the students feel much more comfortable with clinical nephrology topics.
- Dr. **Gilbert** is the co-director of a course titled Quantitative Physiology for Biomedical Engineers (BE 706) at Boston University.

Continuing Teaching Initiatives

Table 13: Longstanding Graduate-level Teaching Initiatives by Division Members

School	Students	Course	Personnel
TUSM	2 nd year	Renal Pathophysiology Course	Dr. Gilbert, Director Division Attendings and Fellows
	1 st & 2 nd year	Physical Diagnosis Course	Nephrology fellows and several members of the physician staff
	3 rd year	Renal Ward Service	Division Attendings
	4 th year	Renal Ward Service as sub- interns	Division Attendings
	4th year	Consultative Nephrology	Dr. Gilbert
	4th year	Evidence-based medicine elective	Dr. Gilbert
Tufts University School of Dental Medicine	—	Lectures on topics related to hypertension and nephrology	Drs. Meyer and Weiner
Friedman School of Nutrition Science and Policy	—	Lectures on topics related to hypertension and nephrology	Drs. Balakrishnan, Meyer and Weiner
The Francis Stern Nutrition Center at Tufts Medical Center		4-week experiential rotation in DCI Boston dialysis unit	Poonhar Poon, RD

Table 14: Longstanding Postgraduate-level Teaching Initiatives by Division Members

Institution	Role	Personnel
Sackler School of Graduate Biomedical Sciences at Tufts University	• Mentor fellows during their independent research in pursuit of a Masters of Science degree	Drs. Levey and Sarnak
TUSM Department of Pharmacology and Experimental Therapeutics	• Coordinate the Nephrology Section of the Advanced Molecular and Cellular Pharmacology Course	Dr. Gilbert
Tufts Medical Center	• Renal Ward Service Nephrology Consultation Service Intern and Resident Teaching • Kidney and Blood Pressure Center at Tufts Medical Center senior medical residents • Tufts Medical Center Morning Report and Noon Conference	Division Attendings

Fellowship Programs

Clinical Fellowship Training

Dr. **Gilbert** is the Director of the highly respected clinical fellowship training program. A well-organized curriculum emphasizing breadth and depth of clinical knowledge, rotations at Tufts Medical Center and CSEMC and continuous evaluation all result in a highly successful program. Over the past 14 years, approximately 42% of the 33 graduates of the fellowship program have continued in full-time academic positions. Another 27% have become private practitioners with substantial teaching responsibilities, many in hospitals with university affiliations. The remainder of the graduates is largely engaged in private practice. During the past academic year, 207 applications to the clinical fellowship program were reviewed for only one open position available in 2006. Table 15 and Table 16 list graduating and current clinical fellows.

Table 15: Graduated Clinical Fellows

Name	Period of Training	Current Position
Magdalena Madero, MD	2005-2007	Academic Nephrologist Mexico City Mexico
Ashish Mahajan, MD, MPH	2006-2007	Nephrology Associates of Merrimack Valley Lowell MA
Christina Kwack, MD, MS	2006-2007	Woburn Nephrology Associates Woburn MA
Jeremy Marcus, MD	2004-2007	Private Practice Washington DC

Table 16: Current Clinical Fellows

Name	Period of Training	Previous Institution
Marcellus Assiago, MD	2006-2008	Lehigh Valley Hospital Bethlehem PA
Craig Gordon, MD, MS	2007-2008	Beth Israel Deaconess Medical Center Boston MA
Essam Elsayed, MD	2007-2008	UMass Memorial Medical Center Worcester MA
Marie Sosa, MD	2007-2009	Caritas-St. Elizabeth's Medical Center Brighton MA
Navdeep Tangri, MD	2007-2008	McGill University Montreal Quebec Canada

Research Fellowship Training

Continuing Research Fellowship Training Initiatives

The Division offers training in clinical research in two research tracks as shown below. Unfortunately, this year the funding for CSEMC translational research track was discontinued. However, fellows can still elect to participate in research projects at CSEMC under the direction of Drs. **Jaber**, **Madias**, and **Liangos**.



Figure 2: Research Fellowship Training Tracks

Clinical Investigator Track: NIDDK Training Grant

The NIDDK Institutional Research Training Award, in "Epidemiology, Clinical Trials and Outcomes Research in Nephrology" funds four trainees per year in the Clinical Investigator Track. This program is designed for fellows aspiring to a career as an independent investigator in clinical research in nephrology. The program has been focused primarily on chronic kidney disease, although in recent years, there is a growing interest in acute kidney injury. The specific aims of the Training Program are:

1. Didactic Training - course work in fulfillment of the MS degree in the Graduate Program in Clinical Research at the Sackler School of Graduate Biomedical Sciences at Tufts University;
2. Independent Study - a hypothesis-based research project supervised by a nephrologist mentor and a research team of faculty with expertise in other disciplines;
3. Training in Presentation - participation in conferences and seminars designed to improve trainees' oral and written presentations.

The nephrologist mentors ensure integration of all aspects of the curriculum with trainees' research projects.

Clinical-Educator Track: NKF Center for Clinical Practice Guideline Development and Implementation

The NKF Center for Clinical Practice Guideline Development and Implementation at Tufts Medical Center offers two fellowship positions to nephrology trainees in the Clinical-Educator track. This program is designed for fellows interested in developing skills to remain at the forefront of medical knowledge, applying methods from evidence-based medicine, and enhancing the delivery of high-quality healthcare. The goal of the fellowship is to train nephrologists in applications of evidence-based medicine and provide support to KDOQI and KDIGO guideline development and implementation. Fellows are fully integrated into the research training program in the Division. Fellows are supervised and mentored by staff of the NKF Center and other members of the Division and the Institute for Clinical Research and Health Policy Studies. They receive formal training in research methods in pursuit of a Master of Science degree at the Sackler School of Graduate Biomedical Sciences at Tufts University. Fellows participate in service to the NKF in guideline development and implementation and conduct research projects at the NKF Center. The Center offers two overlapping two-year fellowship positions in clinical research to individuals planning a career in academic nephrology. Fellows are recruited through a competitive selection process. The Clinical-Educator Program may be combined with a year of clinical training for subspecialty board eligibility in nephrology.

During 2007, fellows in the Center have held central roles in ongoing KDOQI and KDIGO guideline development projects. They have also conducted research towards theses in the Sackler School's Master of Science in Clinical Care Research program.

- Dr. Gordon completed his thesis entitled "Interferon Treatment in Hemodialysis Patients with Chronic Hepatitis C Virus Infection – a Systematic Review of the Literature, Meta-analysis and Individual Patient Data Analysis of Treatment Efficacy".
- Dr. Gordon presented his research at the Young Investigators Research Forum at the National Kidney Foundation Spring Clinical Meeting in April 2007. He has also submitted related manuscripts and abstracts to nephrology and hepatology journals and conferences.
- Dr. Kwack Yuhan's thesis "Current patterns of physician testing in the evaluation of anemia" was submitted in April 2007.
- Dr. Mahajan's thesis "Chronic Kidney Disease in People with Traditional Cardiovascular Risk Factors in a Large Managed Care Organization" was submitted in June 2007.
- Dr. Moorthi submitted her thesis proposal entitled "Mineral Metabolism and Vascular Access Failure in Patients Undergoing Hemodialysis" which was accepted in August 2007.

Research Fellowship Program Statistics

- We have 9 current research fellows in training. We received 107 applications in 2007 for 3 open research fellowship positions. See Table 17 and Table 18 for listings of graduated and current research fellows.

Table 17: Graduated Research Fellows

Name	Training Period	Nephrology Mentor	Current Position
Essam Elsayed, MD, MS	2005-2007	Mark J. Sarnak, MD, MS	Clinical Nephrology Fellowship Tufts Medical Center Boston MA
Craig Gordon, MD, MS	2005-2007	Katrin Uhlig, MD, MS	Clinical Nephrology Fellowship Tufts Medical Center Boston MA

Table 18: Current Research Fellows

Name	Prior Institution	Nephrology Mentor	Funding Source
Ashan Alam, MD	Clinical Nephrology Fellow McGill University Health Centre Montreal, Canada	V.S. Balakrishnan, MD, PhD	Research scholarship from the Faculty of Medicine at McGill University
Emily Dulude, MD	Clinical Nephrology Fellow Tufts Medical Center	V.S. Balakrishnan, MD, PhD	NIDDK Institutional Training Grant
Ezra Gabbay, MD	Clinical Investigator Hadassah-Hebrew University Medical Center	Klemens Meyer, MD Dana Miskulin, MD, MS	NIDDK Institutional Training Grant
Cindy Huang, MD	Resident John Hopkins/Sinai Hospital Program in Internal Medicine	Andrew S. Levey, MD Mark J. Sarnak, MD, MS	NIDDK Institutional Training Grant
Ranjani Moorthi, MD, MPH	Resident Worcester Medical Center	Andrew S. Levey, MD	NKF
Dena Rifkin, MD	Clinical Nephrology Fellow Tufts Medical Center	Mark J. Sarnak, MD, MS	NIDDK Institutional Training Grant
Nicholas Stoycheff, MD	Resident University of Maryland	Andrew S. Levey, MD Lesley A. Stevens, MD, MS	NIDDK Institutional Training Grant
Martin Wagner, MD	Nephrology Fellowship University Hospital Würzburg, Germany	Katrin Uhlig, MD, MS	NKF
Jill Young, MD	Clinical Nephrology Fellow Tufts Medical Center	Vandana Menon, MD, PhD Mark J. Sarnak, MD, MS	NIDDK Institutional Training Grant

Continuing Medical Education

**For the second year in a row,
Division members gave more than 60
local, national, and international presentations.**

- KDOQI work group members have repeatedly recognized the didactic instruction and supervision by the Evidence Review Team (ERT) and described it as a qualifying experience in evidence-based medicine. As a result, in 2005, Dr. Uhlig sought formal accreditation for the seminars and workshops conducted by the ERT as a CME activity on methods of evidence-based guideline development. After attending four workgroup meetings, physicians participating in the development of a full guideline are now eligible for up to 10 CME credits awarded by the Tufts University Office of Medical Education. The following CME accredited seminars were held in 2007:

Care of the Kidney Transplant Recipient: 1st Work Group Meeting
Boston, MA
February 24-25, 2007
4 CME Credits

Chronic Kidney Disease related Mineral and Bone Disorders: 2nd Work Group Meeting
Paris, France
March 6-7, 2007
3 CME Credits

Care of the Kidney Transplant Recipient: 2nd Work Group Meeting
Brussels, Belgium
September 2007
3 CME Credits

Chronic Kidney Disease related Mineral and Bone Disorders: 3rd Work Group Meeting
Boston, MA
October 2007
2 CME Credits

- Dr. **Jaber** was the co-chair of a workshop on Biomarkers conducted during the 12th Annual International Conference on Continuous Renal Replacement Therapies held in San Diego, CA on March 8, 2007.

- Dr. **Khan** is a faculty member in the Department of Continuing Medical Education and presents formal lectures to trainees from pharmaceutical companies.
- Dr. **Uhlig** was a consultant to the Society of Gynecological Surgeons. She was the co-organizer and a faculty member for the two-day workshop on systematic evidence review and guideline development on whether to use mesh material in anterior vaginal prolapse repair development. The workshop was held on April 10th and 11th in Orlando FL.

The Division is actively involved in providing various forms of continuing medical education. Table 19 lists the continuing education presentations given by Division faculty in 2007. The table excludes presentations given within the Division, as all faculty are expected to present one Journal Club and one Research Conference annually.

Table 19: 2007 Local, National and International Presentations by Division Faculty

Presenter	Title	Location	Date
LOCAL/REGIONAL			
Dr. Gilbert	New Approaches to Hyponatremia: Vasopressin Antagonists	Medical Grand Rounds Tufts Medical Center Boston MA	December 7
	Renal Artery Stenosis	Medical Grand Rounds Caritas Carney Hospital Dorchester MA	October 24
	Renal Artery Stenosis	Medical Grand Rounds Brockton Hospital Brockton MA	July 11
	Lupus Nephritis	Tufts Medical Center Inflammatory Disease Center's Multidisciplinary Educational Program Boston MA	May 16
Dr. Jaber	Update on Kidney Stones	Medical Grand Rounds Caritas Caritas St. Elizabeth's Medical Center Boston MA	February 15
	Acute Renal Failure in the ICU	Pulmonary Grand Rounds Caritas St. Elizabeth's Medical Center Boston MA	February 15
	Cytokine Gene Polymorphisms in Acute Renal Failure: Associations with Disease Severity	9 th Annual Symposium, Clinical Research Program Sackler School of Graduate Biomedical Sciences Tufts Medical Center Boston MA	May 8
	Acute Complications of Dialysis	The Brigham Renal Board Review Course Boston MA	September 19

	Diagnostic and Prognostic Biomarkers in Acute Kidney Injury	Nephrology Research Conference Boston Medical Center Boston MA	December 13
Dr. Madias	Inaugural Lecturer	John T. Harrington, MD Grand Rounds Tufts Medical Center Boston MA	March
	Invited Lecturer	Caritas Carney Hospital Dorchester MA	
Dr. Meyer	Introduction to the Network of New England	ESRD Network of New England Meeting for Dialysis Technicians Portsmouth NH	May 1
Dr. Sarnak	Cardiovascular Risk Factors in CKD. Implications of Cystatin C	Boston University Renal Division Seminar Boston MA	February 8
	Cardiovascular Risk Factors in CKD. Implications of Cystatin C	Maine University Medical Center Renal Division Seminar Portland MA	February 9
	What is Different About CVD in CKD?	University of Massachusetts Renal Division Seminar Worcester MA	March 1
	Chronic Kidney Disease as a Risk Factor for CVD.	Massachusetts General Hospital Nephrology Review Course Boston MA	June 10
	Cardiovascular Disease and Chronic Kidney Disease	West Roxbury Veterans Administration West Roxbury MA	October 10
Dr. Stevens	GFR Estimating Equations	Baystate Medical Center Springfield MA	January 25
Dr. Uhlig	Clinical Practice Guideline Development at Tufts New England Medical Center – An Alternative Career in Clinical Research	Sackler School Clinical Research Program and Tufts Medical Center General Clinical Research Center Boston MA	July 25
NATIONAL			
Dr. Gilbert	The Kidney: Structure and Function	Foundation for Managed Care Pharmacies Boston MA	October 23
Dr. Jaber	Principles and Classification of Biomarkers in AKI	12 th Annual International Conference on Continuous Renal Replacement Therapies San Diego CA	March 8
	Genetic Determinants in Acute Kidney Injury	12 th Annual International Conference on Continuous Renal Replacement Therapies San Diego CA	March 9
	Management of Intradialytic Complications: Case Studies	National Kidney Foundation 16 th Annual Clinical Nephrology Meetings Orlando FL	April 10
	Inflammation and Atherosclerosis in ESRD	National Kidney Foundation 16 th Annual Clinical Nephrology Meetings Orlando FL	April 13

	Inflammation and CKD	National Kidney Foundation 16 th Annual Clinical Nephrology Meeting Orlando FL	April 13
Dr. Jaber	Antibiotic Prevention and Treatment Strategies	National Kidney Foundation 16 th Annual Clinical Nephrology Meeting Orlando FL	April 13
	Update on the FREEDOM Study	American Society for Artificial Internal Organs 53 rd Annual Conference Chicago IL	June 9
	Immunomodulatory Cytokines in Human Acute Kidney Injury	American Society of Nephrology Annual Meeting San Francisco CA	November 2
Dr. Levey	Reporting Estimated GFR: The Public Health Benefit	American Association of Clinical Chemists San Diego CA	July 16
Dr. Madias	Invited Lecturer	Spring Clinical Meetings National Kidney Foundation Orlando FL	April
Dr. Meyer	Improving Care for Chronic Kidney Disease and Kidney Failure	MassPRO Liaison Meeting Sturbridge MA	February 6
	Home Dialysis	Emerson Hospital Corporators' Meeting Concord MA	February 8
	Information Technology Prioritization Exercise	Medical Information Steering Committee DCI Spring Meeting Incline Village NV	April 25
	Information Technology Update	Medical Directors' Meeting DCI Spring Meeting Incline Village NV	April 26
	Functional Health Computerized Adaptive Testing	Medical Directors' Meeting DCI Spring Meeting Incline Village NV	April 27
	Information Systems Update	Medical Information Steering Committee DCI Spring Meeting Destin FL	October 10
Dr. Perrone	Volume Progression in Polycystic Kidney Disease and the HALT PKD Trial	Brigham and Women's Hospital Harvard Medical School Boston MA	January 25
	Polycystic Kidney Disease	Medical Grand Rounds Newton- Wellesley Hospital Newton MA	February 7
	Clinical Trials in Polycystic Kidney Disease	Greater NY/NJ Polycystic Kidney Disease Foundation Meeting	March 10
	Research Update	Polycystic Kidney Disease Foundation Northeast Chapter Waltham MA	April 15
	Update in Kidney Transplantation	St. Luke's Hospital New Bedford MA	May 24

	What Every Patient Should Know about PKD	18 th Annual Conference on PKD Polycystic Kidney Disease Foundation Orlando FL	June 22
	Living Organ Donation	18 th Annual Conference on PKD Polycystic Kidney Disease Foundation Orlando FL	June 23
	Divalent Disorders	Intensive Board Review and Contemporary Issues in Nephrology Harvard Medical School, Brigham and Women's Hospital Boston MA	September 17
Dr. Richardson	Reviews the genetics of ADPKD, ARPKD, and other cystic diseases. What to advise patients and families with PKD. ACPE's levels of continuing education. Level II CPE activities. Application: the PSAP experience. (Presentation and 4-member panel discussion)	American Society of Nephrology Annual Meeting San Francisco CA	November 2
Dr. Sarnak	Inflammation in Chronic Kidney Disease: Biomarkers, Morbidity and Therapy Prevention of Cardiovascular Disease in Chronic Kidney Disease Cardiovascular Risk Factors in Dialysis Patients: Traditional and Non-Traditional Case presentations on Cardiovascular Disease and Kidney Disease Cardiovascular Disease and Chronic Kidney Disease, press release	Accreditation Council for Pharmacy Education 12 th Conference on Continuing Pharmacy Education Denver CO American Society of Nephrology Weekend New York City NY American Society of Nephrology Annual Meeting San Francisco CA American Society of Nephrology Annual Meeting San Francisco CA American Society of Nephrology Annual Meeting San Francisco CA	October 6 February 23 October 31 November 1 November 1
Dr. Stevens	GFR Estimates: Pros and Cons and Implementation in Clinical Practice. CKD as a Global Public Health Problem: Approaches and Initiatives.	Workshop at 2007 NKF Clinical Meetings Orlando FL KDIGO session at 2007 NKF Clinical Meetings Orlando FL	April 11 April 13
Dr. Weiner	<i>Free Communications:</i> Inflammation and Cognition in Hemodialysis Patients Risk of Stroke in Chronic Kidney Disease	American Society of Nephrology Annual Meeting San Francisco CA American Society of Nephrology Annual Meeting San Francisco CA	November November

INTERNATIONAL

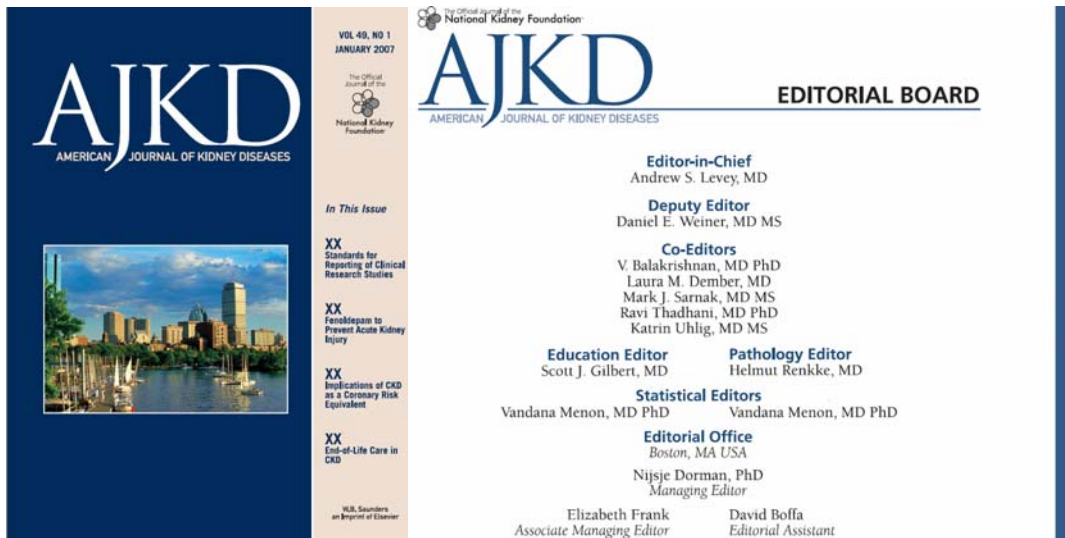
Dr. Jaber	What is the Impact of Membrane Choice on Outcome?	International Consensus Conference on Management and Prevention of Acute Renal Failure in an ICU patient 8 th ATS/ERS/ESICM/SCCM/SRLF International Consensus Conference in Intensive Care Medicine Montreal, Canada	May 4
Dr. Sarnak	Using Guidelines to Improve Care of Patients with CKD	Portuguese Society of Nephrology	May 23
	Chronic Kidney Disease and Cardiovascular Risk	Portuguese Society of Nephrology	May 24
	Cardiovascular Risk Factors in CKD. Implications of Cystatin C	Portuguese Society of Nephrology	May 26
Dr. Stevens	GFR Estimating Equations: Interpretation and Implementation-Importance to Worldwide CKD Initiatives	CKD Symposium Tokyo, Japan	March 3
Dr. Uhlig	How are guidelines developed? (<i>in German</i>)	German Society for Nephrology (Deutsche Gesellschaft für Nephrologie) Munich, Germany	September 23
	Methods of evidence review, synthesis and appraisal in the KDIGO CKD-Mineral and Bone Disease Guideline	KDIGO Board of Directors Frankfurt, Germany	November 30

Editorial Appointments

In 2007, the Division completed its first year as the Editorial Office home of the *American Journal of Kidney Diseases*.

American Journal of Kidney Diseases

The Division houses the editorial office of the *American Journal of Kidney Diseases* (AJKD), the official journal of the NKF, and division members lead a multi-institution effort to continue to make AJKD the preeminent clinical journal in nephrology. The first issue of AJKD compiled by Tufts Medical Center appeared in January 2007.



First issue of AJKD by Tufts Medical Center Editorial Team

Dr. **Levey** is the Editor-in-Chief and Dr. **Weiner** serves as the Deputy Editor. Other Tufts Medical Center-based editors of AJKD include Drs. **Balakrishnan**, **Gilbert**, and **Schmid**, and Mr. **Tighiouart**. The Editorial Board includes five additional Editors affiliated with other local hospitals, as well as 28 Associate Editors worldwide. Dr. **Harrington** is a Tufts Medical Center-based Associate Editor.

The editorial office is staffed by **Nijsje Dorman, PhD** (Managing Editor), **Elizabeth Frank** (Associate Managing Editor), and **David Boffa** and **Brendan Davis** (Editorial Assistants). The editorial office is located on the first floor of the Traders Building at 35 Kneeland Street.

Continuing a trend of increasing manuscript submissions, AJKD received 1,326 submissions in its first full year of operation at Tufts Medical Center. Of that number 797 were full-length research articles. Fewer than 20% were accepted for publication.

During the inaugural year of AJKD at Tufts Medical Center, several new features were debuted. “This Month in AJKD”, a feature overseen by Dr. **Weiner**, highlights and summarizes select articles in each issue. “In the Literature” is a series of editorials that evaluates recent ground-breaking articles that affect the kidney community. “In Translation”, which was spearheaded by Co-Editor Dr. **Balakrishnan**, analyzes developments in basic science with diagnostic or therapeutic implications in the clinical practice of nephrology. “In Practice”, handled by Deputy Editor **Weiner**, examines clinical topics beyond nephrology that affect nephrologists daily. “The World Kidney Forum”, handled by Dr. **Harrington**, explores the socioeconomic, geopolitical, ethical, and historical issues related to kidney disease and the wider world of nephrology. “The Acid-Base & Electrolyte Teaching Case” serves to educate clinicians on acid-base and electrolyte pathophysiology and the interpretation of serum and urine chemistries in clinical practice. Education Editor Dr. **Gilbert** works with Dr. **Harrington** on his teaching case feature and other educational content, including the “Image Teaching Case”, which

is expected to debut in 2008. Despite new content that was added in 2007, the editors were able to maintain the time from submission to first decision for Original Investigations at 42 days.

In addition to content pertaining original research and special features, AJKD also published KDOQI clinical practice recommendations on diabetes and CKD (in supplement form) and anemia in CKD (as a journal special section).

Finally, AJKD has continued to be a strong advocate of World Kidney Day. In March 2007 AJKD featured an editorial on World Kidney Day and its efforts to raise awareness of kidney disease. For World Kidney Day 2008, the editors plan to publish an issue highlighting CKD around the world.

Other Editorial Board Appointments

In addition to their responsibility for editorship of *American Journal of Kidney Diseases*, members of the Division serve on other editorial boards.

- Dr. **Madias** is a member of the editorial boards of *Hippokratia* and *Hellenic Medicine*.
- Dr. **Perrone** serves on the Editorial Board of the *Clinical Journal of the American Society of Nephrology* and is cystic kidney disease editor for Up to Date.
- Dr. **Richardson** is the vice-chairperson for the 6th edition of the *Pharmacotherapy Self-assessment Program* (PSAP). In 2007, she served as the Interim Chair. The PSAP series is a premier publication of the American College of Clinical Pharmacy and is modeled after the Medical Knowledge Self-Assessment Program. The program is designed as a self-assessment tool to assist pharmacists in sharpening their clinical skills and keeping abreast in therapeutic areas with updated standards of practice.
- Dr. **Sarnak** is a member of the Editorial Board for the *Clinical Journal of the American Society of Nephrology*.

2007 Education Awards and Honors

- Tufts Medical Center House Staff rated the Kidney and Blood Pressure Center outpatient clinical rotation as having the highest outpatient clinical impact.
- Dr. **Gilbert** was awarded a fellowship in the Christensen Teaching Seminar at the Derek Bok Center for Teaching and Learning at Harvard University.

- Dr. **Gilbert** received the Class of 2007 TUSM Citation for Excellence in Teaching. The 3rd year medical students also recognized his teaching acumen by awarding him the Excellence in Teaching Award.
- Dr. **Levey** received the Faculty Recognition Award for 25 years of service to the TUSM.
- Dr. **Menon** was appointed as an Assistant Professor in the Department of Public Health and Family Medicine at TUSM.

Public Policy

2007 Policy Initiatives

The NKF Center had a record-breaking year in 2007!

Two clinical practice guidelines and clinical practice recommendations were published, 1 was under review and 2 were ongoing.

- During 2007, the NKF Center for Guideline Development and Implementation served as the Evidence Review Team to the KDOQI guideline work groups for the Diabetes guideline and the update of the Anemia guideline. They also served as the Evidence Review Team for KDIGO guideline work groups for the Hepatitis C, CKD-MBD and Transplant guidelines.
- Dr. **Levey** co-chaired a Center for Disease Control and Prevention technical expert panel on Comprehensive Public Health Strategies for Preventing the Development and Progression of Chronic Kidney Disease. The panel met in Atlanta, GA on March 1, 2007.
- Dr. **Levey** has been invited to co-chair a workshop sponsored by the NKF and the Food and Drug Administration on Proteinuria as a Surrogate Outcome in Chronic Kidney Disease. The workshop is being held in 2008.
- Dr. **Meyer** is a consultant to the Food and Drug Administration's Gastroenterology and Urology Devices Panel.
- Dr. **Perrone** was appointed as Chairman of the Steering Committee for the Clinical Trial Endpoints and Therapies in Polycystic Kidney Disease workshop. The FDA and the PKD Foundation jointly sponsored this workshop. See

http://www.pkdcure.org/site/PageServer?pagename=2007_FDAworkshop for more information.

**3 senior-level Division members are participating
in FDA-related public policy initiatives.**

- As an extension of the above-mentioned workshop, Dr. **Perrone** has been invited to attend a Polycystic Kidney Disease Database Consortium meeting. The goal of the Consortium is to establish a polycystic kidney disease clinical database. The meeting will be held in Chicago in March 2008.
- Dr. **Uhlig** co-chaired a workshop on the Promises and Challenges of International Guideline Coordination for the 4th Guidelines International Network (G-I-N) Conference held in Toronto during August 2007.

Continuing Policy Initiatives

DCI Information Systems

Dr. **Meyer** serves as Medical Director for Information Systems for Dialysis Clinic, Inc., chairs its Medical Director Computer Steering Committee, and serves on its Quality Management Committee. Dr. Meyer is one of the principal architects of DCI's information system, which he continues to develop, and which sets an industry standard for quality of care and of information. The team's current projects include continued development of decision support tools for treatment of dialysis patients' anemia and the implementation of an interface between hemodialysis machines and the information system.

DCI Outcomes Monitoring Program

Dr. **Richardson** directs the corporate-wide DCI Outcomes Monitoring Program. The program has two facets, one is the use of patient experience data to improve care, and the other is the collection of high-quality comorbidity data. Patient experience is assessed using the SF-36 and a patient satisfaction questionnaire. Data are collected from all DCI chronic dialysis units. The current SF-36 database contains nearly 147,000 observations from more than 36,500 dialysis patients.

Dr. **Miskulin** and Alice A. **Martin**, RN lead the Comorbidity Assessment Program. They have trained DCI staff to collect comorbidity data, monitor data quality and develop methods for case-mix adjustments. Where inherent differences in patient populations (i.e., case-mix) can be accounted for, they are developing methods to standardize quality comparisons across facilities. These methods may also be applied in clinical

research studies where non-randomized groups are being compared to enable an unbiased effect of the treatment (or facility in the case of quality monitoring analyses) to be determined.

NKF Center for Clinical Practice Guideline Development and Implementation at Tufts Medical Center

The mission of the NKF Center for Clinical Practice Guideline Development and Implementation at Tufts Medical Center is to contribute to improvements in the quality of care of individuals with kidney disease within the frameworks of the Kidney Disease Outcomes Quality Initiative (KDOQI) and Kidney Disease: Improving Global Outcomes (KDIGO) initiative.

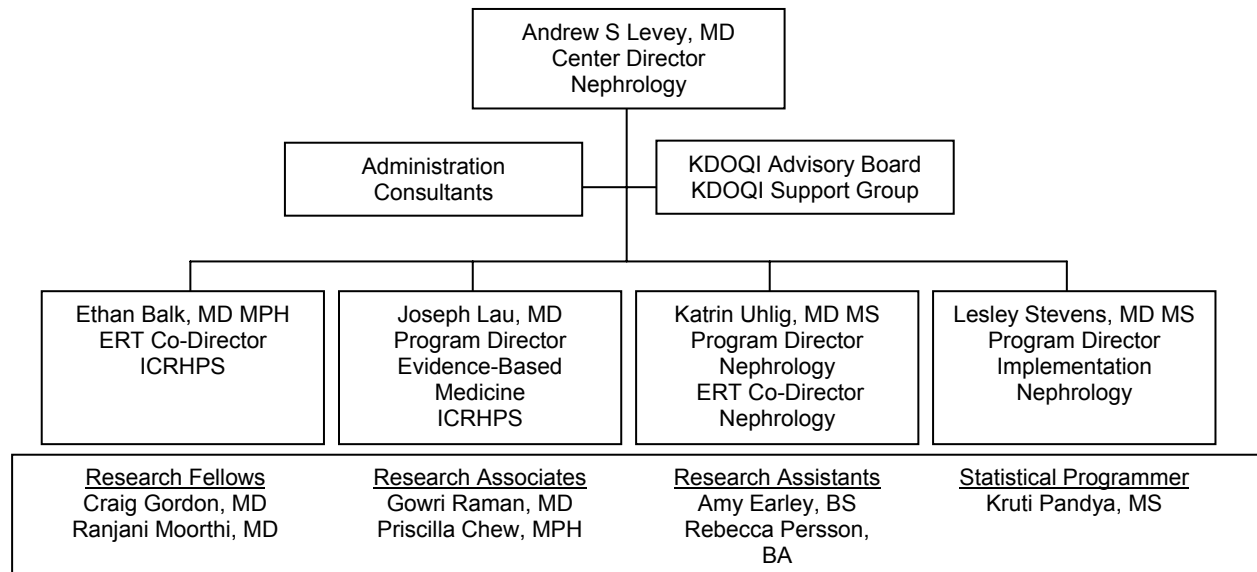


The aims of the Center are to:

- Provide service to the NKF
 - in development of KDOQI and KDIGO guidelines
 - in implementation of KDOQI guidelines
- Conduct research
 - In guideline development
 - In guideline implementation
- Train fellows and work group members in the applications of evidence-based medicine in kidney diseases.

Dr. **Levey** is the Center Director, Nephrology; Dr. **Uhlig** is the Program Director, Nephrology, and Evidence Review Team Co-Director, Nephrology; and Dr. **Stevens** the Program Director, Implementation, Nephrology. Additional staff at the Center are listed in Figure 3 and include Dr. Joseph Lau MD, Program Director Evidence Based Medicine, Institute of Clinical Research and Health Policy Studies (ICRHPS) and Ethan Balk MD MPH, Evidence Review Team Co-Director, ICRHPS. See Figure 3 for the full listing of Center staff.

Figure 3: NKF Center Organization



Service in Guideline Development

The NKF Center was very active in 2007. Two clinical practice guidelines and clinical practice recommendations were published and one was under review. Table 20 lists the KDOQI and KDIGO guideline development work group meetings conducted by the NKF Center in 2007.

The extensive process of KDOQI and KDIGO guideline development is supported by a team of nephrologists and methodologists, which constitutes the Evidence Review Team (ERT). The role of the ERT is to:

- Closely collaborate with the experts in the work groups assembled by the NKF
- Provide methodological support and guidance to the experts
- Provide leadership in conducting the systematic reviews and producing the evidence reports
- Ensure critical work process steps are completed

The ERT's responsibilities assure that the guideline development process is of high quality; that the literature synthesis and appraisal follow a structured, explicit approach; that the guidelines connect to the evidence reviewed; and that the critical steps in the work process such as defining the relevant clinical questions, systematically searching the literature databases, screening the scientific articles, extracting the data, synthesizing and appraising the findings, and drafting of the evidence report are completed.

Table 20: 2007 KDOQI and KDIGO Guideline Development Work Group Meetings

Meeting Title	Location	2007 Meeting Dates
KDIGO Care of the Kidney Transplant Recipient 1 st Work Group Meeting	Boston, MA	February 24-25
KDOQI Anemia Update Work Group Meeting	Dallas, TX	February 2-3
KDIGO Chronic Kidney Disease-related Mineral and Bone Disorders 2 nd Work Group Meeting	Paris, France	March 6-7
KDIGO Hepatitis C 4 th Work Group Meeting	Paris, France	March 15-16
KDIGO Care of the Kidney Transplant Recipient 2 nd Work Group Meeting	Brussels, Belgium	September
KDIGO Chronic Kidney Disease-related Mineral and Bone Disorders 3 rd Work Group Meeting	Boston, MA	October

Service in Guideline Implementation

The NKF Center provides service to the NKF in guideline implementation through consultation and collaboration with NKF and KDIGO in projects in collaboration with other organizations and through “academic detailing,” at Tufts Medical Center and other partners.

Collaborative Partners of the NKF Center include:

- Centers for Disease Control and Prevention
- Coventry Health Care
- Laboratory Corporation of America
- National Committee for Quality Assurance
- NIDDK Kidney Disease Education Program

Drs. **Stevens** and **Levey** work closely with the NKF leadership to develop and enhance NKF programs, such as Kidney Early Evaluation Program (KEEP) and Kidney Learning System (KLS) activities. The focus of this collaboration is to develop strategies and tools for implementation of KDOQI and KDIGO clinical practice guidelines.

Research in Guideline Development and Advancement of Guideline Development Methods

The ERT is constantly evaluating and streamlining the procedures for guideline development as well as improving and standardizing the methods. It conducts meta-analyses for selected evidence review topics and promotes adherence to generally accepted standards when matching the evidence with the guideline questions. The

ERT currently provides consultation to the NKF, KDOQI and KDIGO leadership for the coordination of centralized evidence synthesis and local application.

Research in Guideline Implementation

Guideline implementation research projects study the effectiveness of strategies and tools for guideline implementation to ensure the translation of the guidelines into clinical practice. A research group has been constituted at the NKF Center to lead the implementation efforts. This group also provides advisors for independent research projects undertaken by the KDOQI fellows. This group has established partnerships with Coventry Healthcare, Kaiser Permanente Northwest, LabCorp and Quest Diagnostics, and, jointly with the NKF leadership, is exploring additional partnerships, including the Chronic Disease Research Group at the University of Minnesota

National Kidney Disease Education Program



Dr. **Levey** is a member of the National Kidney Disease Education Program (NKDEP) of the NIDDK. He has participated in the efforts of the NKDEP to recommend reporting GFR estimates by clinical laboratories and to standardize serum creatinine assays for more accurate GFR estimation.