

## Nephrology Scope of Practice

### Executive Summary

Nephrology scope of practice has undergone profound changes in the past decade. This evolution is largely due to: (1) expansion of the prevalent chronic kidney disease (CKD) patient population in the U.S.; (2) evolving health care delivery models in an era of extreme budgetary constraint; and (3) technological innovation altering care delivery to CKD patients. In order to accommodate the heterogenic CKD patient population and the wide variety of practice settings, the nephrologist must be prepared to serve as the CKD patient's primary care provider and/or subspecialty consultant. The use of collaborative practice models in CKD care is essential to meet the needs of this rapidly expanding patient population.

### Background

In May 1995, the Renal Physicians Association (RPA) published the first iteration of its position paper on nephrology scope of practice. The impetus for this document was RPA's concern that the subspecialty of nephrology would not be able to provide enough manpower to meet the demand of a growing end-stage renal disease (ESRD) population that was expected to increase by 8-10% annually. At that time RPA expressed its belief that in order to meet projected workforce needs, the nephrologist must serve as the principal physician for ESRD patients. RPA also recognized that the scope of practice for a nephrologist and the subspecialty credentialing requirements necessary to function as a nephrologist should be specifically defined.

Since the publication of that paper in 1995, healthcare has radically changed. The document was revised in 1998 and once again in 2010. As predicted, by the end of 2011, there were 615,899 individuals with the diagnosis of ESRD; 430,273 of those patients receiving dialysis and 185,626 living with a functioning transplant.<sup>1</sup>

In the United States the number of ESRD cases has been growing at a rate of 9% to 12% annually since the 1970s. The prevalent dialysis patient population grew 52% between 2000 and 2011. Despite the rate of new ESRD patients falling for the first time in 2011 and the growth rate of prevalent ESRD patients being the lowest in three decades, the number of ESRD patients is expected to exceed 775,000 Americans by 2020. Additionally, the relevant target patient population for a practicing nephrologist has been expanded to include all individuals with CKD stages 1 through 5 which have been estimated to be in excess of 25 million people in the U.S. only heightening the urgency to systematically

address CKD care delivery issues. While there remains an increasing demand for nephrologists nationally, interest in the specialty by internal medicine residency trainees has been waning for over a decade and will inevitably lead to a crisis in nephrology care. This topic was reviewed in detail in a recent public policy report published in the *Clinical Journal of the American Society of Nephrology*.<sup>2</sup>

Factors beyond supply and demand of patients and physicians have impacted the design of care delivery as well. Changes in the regulation of nephrology reimbursement and other circumstances have appropriately fostered the adoption of collaborative care models in kidney disease that utilize the expertise of nurse practitioners (NPs), physician assistants (PAs), and clinical nurse specialists (CNSs). These shifts in the care delivery paradigm provide new complexities for the traditional physician practice. As practices grow larger with greater patient populations, most nephrology practices now deploy proactive outpatient CKD care in efforts to delay or prevent the onset of ESRD. While this represents an advance in the state of the art of kidney care, it has implications for the division of labor and responsibilities among nephrologists and their advanced practitioners. Additionally, the growth of interventional nephrology as a distinct discipline within nephrology practice has directly impacted the care provided to CKD patients both prior to and after the onset of ESRD and provides the ability of many nephrology practices to remain economically viable. Finally, the unique roles of the nephrologist within a dialysis unit as attending physician and/or facility medical director in the context of the revised Medicare conditions for coverage for ESRD facilities requires revision of the scope of practice in ways that would have been difficult to foresee in 1995.

This paper presents these issues as they pertain to nephrology scope of practice, including the nephrologist as both principle care physician and subspecialist consultant, the evolution of kidney care, unique scope of practice issues for pediatric nephrologists as well as nephrologists in academic settings. Readers should note that credentialing in nephrology is addressed in a separate position paper entitled *RPA White Paper on Credentialing, Certification and Privileging in Nephrology*. The more specific issues surrounding collaborative practice models in nephrology care are addressed in the paper entitled *RPA Position Paper on Development of Effective Collaborative Practice Models for Chronic Renal Care*.

## **Discussion**

### Principal Care and Subspecialist Consultant Care in Nephrology

As in other medical specialties, nephrology has evolved profoundly in recent years, but unlike its counterparts in medicine, nephrology can be considered a hybrid discipline. Nephrologists often serve as both primary care provider and subspecialty consultant. A nephrologist can provide evaluation and management (E&M) based care as well as procedurally-oriented services.

Among the categories of patients for whom nephrologists may serve as principal providers include:

- *Children or adults with mid- to late-stage CKD*-- These patients have the diagnosis of CKD and are treated in an ambulatory setting prior to entry into the Medicare ESRD Program for treatment with dialysis or renal transplantation.
- *Kidney or kidney-pancreas transplant patients*-- A strong body of evidence shows when these patients receive treatment by transplant physicians instead of non-specialists, both patient and graft survival are positively affected.
- *Patients with ESRD on chronic outpatient dialysis*
- *Patients with glomerular disease*
- *Patients with complicated hypertension*
- *Patients with genetic renal diseases such as polycystic kidney disease*

As subspecialty consultants, nephrologists commonly care for patients already under the care of non-nephrologists with the following renal-related issues:

- *Patients with acute kidney injury (AKI)*
- *Hospitalized patients and outpatients with electrolyte and acid-base abnormalities*
- *High risk pregnancy patients* - most notably women with pregnancy complicated by urinary tract infection, hypertension or pre-eclampsia, with CKD or who have received a kidney transplant and become pregnant; and diabetic patients particularly those with type 1 diabetes mellitus who become pregnant
- *Patients with recurrent nephrolithiasis*
- *Patients with genetic renal diseases such as polycystic kidney disease*
- *Patients with edematous states*
- *Patients identified with CKD, hematuria or proteinuria*
- *Patients with disorders requiring extracorporeal therapy such as therapeutic apheresis for Guillan Barre, and myasthenia gravis, plasma exchange for microangiopathic hemolytic anemia and RBC exchange for sickle cell anemia*
- *Patients with solid organ transplants (other than kidney) who require management of immunosuppressive therapy in the absence of another qualified transplant physician and/or patients who develop CKD post-transplant*

### Primary Care by the Nephrologist

As the primary care provider, the nephrologist is empowered to provide for all of the ongoing medical needs of CKD patients, including diagnostic studies, consultations, and

therapeutic interventions. For many patients, this may be the most logical and efficient method of care delivery as CKD is a multisystem disease with multiple complications that are unfamiliar to non-nephrologist physicians and require the unique expertise of a nephrologist. The frequency and complexity of these complications leads to reluctance among non-nephrologist primary care physicians to treat and follow CKD patients.

The ability of the nephrology workforce to care for CKD patients is also affected by regional and geographic differences in the availability of PCPs and nephrologists. This leads to variations in how nephrology practices differ in their use of NPs, PAs, and CNSs. The distribution of the nephrology workforce is not uniform across the country and the limited availability of nephrologists in underserved areas will call for care that may be provided by a physician other than a nephrologist or mid-level providers. RPA's 2007 position paper on the *Development of Effective Collaborative Practice Models for Chronic Renal Care* states that:

*Appropriate use of collaborative practice models in renal care represents an effective method of providing high quality care to a patient population experiencing vast growth in an era of diminishing nephrologist resources, and also has the potential to simultaneously improve the quality of patient care delivered and provide greater cost-efficiencies in the delivery of that care.*

Nonetheless, the same document goes on to note that:

*The nephrologist must maintain the primary leadership role within the renal care team and assume ultimate responsibility for patients' care.*

### Care of Chronic Dialysis Patients

Several of the circumstances described above also apply to the treatment of chronic dialysis patients including the reluctance of other healthcare providers to assume care for dialysis patients, regional and geographic differences in providing this complexity of care, and the variations in the use of mid-level providers

However, there are additional factors indicating that care for chronic dialysis patients is ideally provided by nephrologists. These include: (1) the convenience of primary care services being provided in the dialysis facility; (2) the ability of the nephrologist to discern the appropriateness of preventive care in the context of a diagnosis of ESRD; (3) the understanding by the nephrologist of the implications of this level of care provided in the renal disease context; and most importantly (4) the wishes of the patient with whom a longstanding care relationship exists.

### Nephrologist Role in Evolving Care Delivery Concepts

Issues surrounding the delivery of care by primary and principal care physicians to chronic disease patient populations have been the subject of increasing consideration in the context of evolving care delivery models such as the patient centered medical home (PCMH), the accountable care organization (ACO) model and the nephrology-specific ESRD Seamless Care Organization (ESCO). The PCMH is an approach to provide comprehensive patient-centered, primary care in a healthcare setting that facilitates partnerships between

individual patients and their families with their personal physicians. It utilizes a whole person orientation to providing integrated patient care by a personal physician in a physician-directed medical practice. An ACO is generally defined as an integrated health care delivery system that coordinates services provided by physicians, hospitals, and other specialty providers that deliver care to a defined patient population. An ESCO is a model proposed by the CMS Center for Medicare and Medicaid Innovation (CMMI) in 2013 that is scheduled for implementation in 2015. It is, in short, an ACO with a target population of patients diagnosed with ESRD and mandates nephrologist participation.

The PCMH, ACO and ESCO models are examples of viable proposals with potential to enhance the quality of care provided to patients while simultaneously promoting cost efficiency through shared savings among the participants. Use of these care delivery models should not impose unfunded mandatory services on participating nephrologists or other subspecialists. There should be clear and appropriate written advance agreement between nephrologists and all other providers involved with the patient's care which defines the delineation of responsibilities needed to co-manage the patient's various medical conditions.

In order to facilitate interactions between primary care physicians and nephrologists, RPA has developed a post-consultation letter template intended for nephrologists to communicate effectively to the referring clinician after a patient has been evaluated. It is presented in two formats to meet the requirements of varying letter-writing styles. This template is meant to serve three purposes:

- Establish effective communication with the referring clinician
- Serve as a checklist identifying the goals of care that need to be addressed in patients with CKD
- Define the roles of each provider in the event that the patient requires co-management

### Nephrologist as Expert in Specific Procedures

One attendant result of the typical nephrologist's participation in a wide array of clinical activities is the development of expertise in numerous procedures specific to kidney patient care. Examples include but are not limited to:

- *Dialysis*—In the outpatient setting this includes in-center hemodialysis and home dialysis modalities such as chronic ambulatory peritoneal dialysis, continuous cycling peritoneal dialysis, nocturnal home hemodialysis, traditional home hemodialysis, and short daily home hemodialysis. In the inpatient setting, nephrologists specialize in dialysis of chronic patients admitted for acute care and patients with acute kidney injury and patients with dialyzable intoxications
- *Continuous Renal Replacement Therapy (CRRT)*—This includes therapy provided to critically ill patients requiring renal replacement therapy and/or fluid removal.

- *Interventional Nephrology*—This includes procedures such as placement of temporary dialysis catheters, placement of permanent hemodialysis and peritoneal dialysis catheters, placement of primary arteriovenous fistulae and grafts, preemptive interventions to prevent access failure including angioplasty and stent placement and salvage of failed accesses.
- *Ultrasound of the native or transplanted kidney and vascular access*
- *Diuretic management and isolated ultrafiltration of patients with edematous states and congestive heart failure*
- *Therapeutic apheresis*—where nephrologists direct the delivery of therapeutic apheresis to patients with both renal and non-renal diseases.
- *Native and transplant kidney biopsies*

### Care of the Pediatric Kidney Patient

According to the American Society of Pediatric Nephrology (ASPN), pediatric nephrologists in North America are a diverse and active group of academic practitioners, pediatric department chairs, medical school deans, and physicians employed in the pharmaceutical or biotechnology industry. Pediatric nephrologists are clinicians, basic scientists, clinical and translational researchers, and teachers and mentors to future pediatric nephrologists.

Approximately 20,000 children are born each year with kidney or urinary tract abnormalities, and 1.2 million children under the age of 7 will develop urinary tract infections that can permanently damage kidney tissue. Up to 13% of the general US population suffers from CKD, largely due to hypertension and diabetes. Early stages of both of these conditions may first present in childhood and adolescence. Without proper care and effective treatment that can only be provided by pediatric nephrologists, more children and adolescents will require evaluation and treatment for progressive kidney disease and precursors to kidney failure and cardiovascular disease as adults. Progression of CKD to ESRD will lead to an increase in Medicare spending for this segment of the population, even while the patients remain in the pediatric age group.

According to the American Board of Pediatrics the average age of board certified pediatric nephrologists in the United States is about 58 years. While 807 pediatricians are board certified in pediatric nephrology, 357 (about 44%) of these individuals are over the age of 60 and nearing retirement. The number of trainees is not expected to match the number who will be facing retirement. Not only is the age distribution a problem, but so is the geographic distribution. For example, in Hawaii, Montana, North and South Dakota, and Wyoming there are **zero** pediatric nephrologists, but there are patients that need to be served.<sup>3</sup>

The national shortage of pediatric nephrologists cannot be fixed by substituting internist nephrologists or general pediatricians for subspecialty trained pediatric nephrologists. The ASPN outlined the unique needs of the pediatric population with ESRD in a 2005 position paper on quality care. Children with CKD, and especially those with ESRD who undergo dialysis or transplantation, have unique needs which include an emphasis on the

importance of growth and development, school attendance and performance, family dynamics, nutrition, and psychosocial adjustment of the child and family to a chronic disease.<sup>4</sup>

### Nephrologist in Medical Administration, Supervision, and Training Roles

Beyond direct patient care responsibilities, many nephrologists function in leadership capacities in the areas of medical administration, staff supervision, and training/education of kidney patients and staff. Effective implementation of these duties is particularly important in renal care, due to the rapid expansion of the CKD patient population and the resultant multidisciplinary nature of the care provided by the renal care team.

Since 2008, the role of dialysis facility medical director has had the highest profile and undergone the most changes. In April 2008 CMS published a final rule implementing the first revisions to the Conditions for Coverage (CFCs) for Dialysis Facilities since 1976. Once implemented in October 2008, these regulations now govern the operation of dialysis facilities in general and establish the expectations for the dialysis facility medical directors specifically.

These Conditions defined the oversight function of the Medical Director to include responsibility for processes of care within the dialysis facility and patient outcomes, staff education, dialysis technology, water quality, dialyzer reuse, and infection control. The Medical Director is responsible for developing and implementing the Quality Assessment and Performance Improvement (QAPI) program described in the CFCs, in conjunction with the facility's interdisciplinary care team. Additionally, the Medical Director is expected to be knowledgeable about all aspects of facility operation for which he/she is responsible, and prepared to demonstrate this knowledge if requested by state surveyors. Furthermore, the Medical Director is accountable for the patient care processes and outcomes achieved by members of the medical staff of the facility, and is responsible for facilitating the quality improvement of underperforming physicians privileged in that facility. More detailed information on these issues is available in the *RPA Position Paper on Dialysis Facility Medical Director Responsibilities Under the Revised Conditions for Coverage for End-Stage Renal Disease Facilities*.

In the inpatient setting there is no regulatory requirement for a hospital inpatient dialysis facility to engage a Medical Director for extracorporeal services but nephrologists are often requested to participate in this role. Duties and responsibilities for these services bear striking similarities to those of their outpatient medical director counterparts. Moreover, the scope of extracorporeal services provided in hospitals has expanded beyond that of routine hemodialysis. RPA believes that the safe, effective, and quality provision of hospital extracorporeal services are best achieved under the guidance of a nephrologist with expertise and experience in these procedures. More explicit information about this topic is provided in the *RPA White Paper on Medical Director Responsibilities for Inpatient Hemodialysis and Other Extracorporeal Services*.

Nephrologists often take an active role in the development and refinement of processes intended to improve the quality of care provided to kidney patients. Examples of these activities include but are not limited to: (1) participating with regional ESRD Networks by serving on the Network medical review boards; (2) providing input on best practices and

evidence-based medicine to local, regional and national quality organizations; and (3) participating in regional and national quality improvement efforts such as advising state Quality Improvement Organizations (QIOs) and serving on relevant National Quality Forum workgroups.

The vast growth of the CKD population amid a diminishing nephrologist workforce has compelled nephrologists to serve in leadership capacities in collaborative practice arrangements that utilize the services of other health professionals providing care to kidney patients. In addition to leading the renal care team and accepting ultimate responsibility for the patient's care, nephrologists will often assist in the development of training programs for NPs, PAs and renal technicians. These programs ideally address issues such as the roles and responsibilities of the various members of the renal care team, provide clinical instruction on caring for all aspects of the CKD patients, and enhance skills in billing and coding in nephrology.

In certain situations nephrologists may have the opportunity to assist in the improvement of care to populations of CKD patients by serving in leadership roles with dialysis organizations. Positions with dialysis organizations can range from serving on an organization's medical review board, directing clinical research, or serving as a dialysis organization's chief medical officer. These roles can offer a nephrologist the opportunity to not only provide high quality care to the patients she or he cares for directly, but also to affect populations of kidney patients throughout the entire healthcare system.

Nephrologists also serve in leadership roles in kidney transplant programs. Within the context of a transplant program, a nephrologist will not only provide direct patient care to transplant patients but will also supervise other providers such as fellows and advanced practitioners. Among the content areas in which the nephrologist will supervise other providers are: (1) the assessment of donors and recipients; (2) pre-transplant care and the management of transplant patients in the immediate perioperative period; and (3) post transplant care and management.

### Nephrologist in the Academic Setting

Nephrologists are involved in educational venues either as full-time or part-time faculty in university-based or community based teaching institutions or may have teaching responsibilities while engaged in private practice beyond their clinical practice, administrative, and other responsibilities described above. Two primary areas of responsibility in academic settings are the supervision of nephrology fellows and participation in clinical or basic science research. The mentoring and supervision of fellows fall under the purview of the Accreditation Council for Graduate Medical Education (ACGME). There are extensive requirements that define the responsibilities of the training program director and faculty members within a nephrology training program that can be found in the Policies and Procedures of the ACGME.

Nephrologists are often involved in various forms of research to expand knowledge in the field of kidney disease. This typically takes the form of clinical research for those in private practice, and for many in academic settings, but basic science research often becomes a point of emphasis in most academic practices. The scope of practice for the nephrologist involved in basic science and/or clinical research is no different than the nephrologist in



private practice other than the time typically allotted to clinical service. During that time the academic nephrologist is involved in rendering clinical care services he/she is subject to the same guidelines and expectations as outlined for the scope of practice of the private practice nephrologist for that portion of the nephrologist's clinical service time. The portion of time the academic nephrologist devotes to clinical and/or basic research falls under the purview of the individual academic divisions, departments and institutions and is not relevant to the scope of practice outlined in this position paper.

## Recommendations

1. RPA believes that the nephrologist should be considered the principal care physician for patients with ESRD by virtue of their extensive training in the unique technology related to dialysis and the unique medications related to renal transplantation for the ESRD patient, as well as the multisystem complications and drug dosing/interaction issues related to all stages of CKD.
2. Nephrologists should be allowed to serve as primary care physicians for any patient in a particular health care system. Nephrologists are board certified in internal medicine and/or pediatrics, and should not be penalized for their additional training and experience in their subspecialty.
3. The ability of a nephrologist to serve as the primary care physician should continue as health care delivery models evolve to include paradigms such as the PCMH, ACOs and ESCOs.
4. The safe, effective, and quality provision of hospital extracorporeal services are best achieved under the guidance of a nephrologist with expertise and experience in these activities (*RPA White Paper on Medical Director Responsibilities for Inpatient Hemodialysis and Other Extracorporeal Services*).
5. Policymakers should consider the benefits associated with integration of interventional nephrology in kidney disease care. Expertise in procedural skills in vascular access care requires additional training and allows for optimal education and management of patients nearing ESRD, decreased hospitalizations and improved clinical outcomes.
6. The complexities of the scope of practice issues associated with providing CKD care to pediatric patients must be acknowledged and accounted for by policymakers in the development and implementation of care delivery models and reimbursement systems.
7. The use of collaborative practice models in CKD care should be promoted to provide care to the rapidly expanding CKD patient population (*RPA Position Paper on Development of Effective Collaborative Practice Models for Chronic Renal Care*).
8. There should be clear, and when appropriate, written advance agreement between nephrologists and all other physicians as well as other providers regarding the delineation of responsibilities for services provided to co-manage patients' medical conditions.

## Endnotes

---

<sup>1</sup> United States Renal Data System 2013 Annual Data Report

<sup>2</sup> Mark G. Parker MG, Ibrahim T, Shaffer R, Rosner MH, Molitoris, BA. The Future Nephrology Workforce: Will There Be One? Clin J Am Soc Nephrol. 2011; 6(6): 1501-1506.

<sup>3</sup> American Board of Pediatrics 2013-2014 workforce data

<sup>4</sup> Andreoli SP, Brewer ED, Watkins S, Fivush B, Powe N, Shevchek J, and Foreman J. “ASPN Position Paper on Linking Reimbursement to Quality of Care.” J Am Soc Nephrol. 2005; 16: 2263-2269