

Nephrology Fellowship Training in the 21st Century: Where Do We Stand?

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Subspecialty training in nephrology is evaluated and accredited by the Accreditation Council for Graduate Medical Education (ACGME). The goal of this private, nonprofit council is to improve health care by assessing and advancing quality of physicians' education through accreditation (1). The American Board of Internal Medicine (ABIM), also a private, nonprofit evaluation organization, is charged with enhancing the quality of health care by certifying subspecialists and ensuring that physicians have the clinical judgment, skills, and attitudes that are essential for the delivery of excellent patient care (2). Both of these organizations are ultimately accountable to the profession of medicine and to the public.

Nephrology training program directors (TPDs) are entrusted with the responsibility of ensuring that fellows are competently trained in the nephrology subspecialty, with the overriding goal to create physicians who are capable of providing competent, quality care to patients with kidney disease. What is considered "competent training" has evolved over time and continues to change with each passing year. Adoption of the six core competencies was an initial step in the process. In recent years, the ACGME stipulated the institution of more regulations on various aspects of subspecialty training. The major mandates include a reduction in duty hours to reduce physician stress and fatigue, emphasis on competency-based curricular development and competency-based training and evaluation, and ultimately milestone-based education and competency.

Although the ACGME recommends various evaluation tools to verify fellow competency and ABIM tests primarily medical knowledge, TPDs are often left with incomplete data to judge their performance in all areas of fellow training. Currently used evaluation tools can only partially examine competency areas. Some useful data on perceived competency of recent fellowship graduates are garnered from postgraduate surveys, but these provide only limited, local feedback. The article by Berns in this issue of *CJASN* is timely in providing TPDs with general feedback about the strengths and weaknesses of fellowship training in recent years (2004 to 2008) (3). These are sorely needed data

because the last survey of nephrology fellowship training adequacy was published in 1991, reflective of training more than 2 decades ago (4).

Berns surveyed American Society of Nephrology (ASN) members on their perceived competency in fellowship training in a number of nephrology areas and the importance of these areas in their current practice (3). It is interesting that a diverse response from the 133 physicians was noted, some expected and some surprising. Most respondents (92.4%) were trained in US nephrology training programs, and 93% were ABIM certified in nephrology. There was equal representation from academic medical centers and private practice, whereas only approximately 5% were from industry or research. Approximately 98% were involved in some form of patient care.

As one might expect, hospital-based nephrology practice, transplant nephrology, and in-center hemodialysis were generally viewed as adequately taught by training programs. Most of the "bread and butter" areas of nephrology were well covered in fellowship training. It was not surprising that procedures that are currently considered under the domain of "interventional nephrology" were rated deficient, because few programs offer interventional training. Training in business and administrative aspects of nephrology, considered important to clinical practice, were areas of perceived weakness. Unfortunately, previously noted deficiencies (acute and chronic peritoneal dialysis, plasmapheresis, and nutrition) remained a problem. End-of-life/palliative care and geriatric nephrology training, which have received increased attention in the past decade, fell short. Basic/bench research, more so than clinical research, was identified as a deficient training area, as was education in securing research funding from various agencies. This in part reflects the limited number of fellows who enter training programs and are interested in a research career. Table 1 summarizes competency perception as deficient, sufficient, and borderline.

So what are those in the business of training future nephrologists to do with this information? The obvious answer is to identify and programmatically focus our training on the areas of concern; however, there are two major impediments to achieving this goal. First, we need feedback more frequently than every 20 years. Second, it is difficult for any single training program to cover all of these topics sufficiently to ensure competent training. In regard to the first issue, one initiative that will help TPDs identify deficient training areas on a more regular basis is already under way. The ASN has been a crucial

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Table 1. Perceived competency rating of fellowship training areas

Deficient areas (<25% perceived well-trained)
children with kidney disease
business and administrative aspects of practice
interpretation of renal imaging
interventional procedures (including PD catheter and diagnostic and procedural kidney ultrasound performance)
care of long-term home HD patients
obtaining funding for research (federal, industry, foundation, or society)
performance of bench/basic science research
Borderline deficient areas (25 to 75% perceived well-trained)
clinical pharmacology
end-of-life/palliative care
nutrition
renal complications of pregnancy
poisonings and plasmapheresis
genetic renal diseases/adults with childhood kidney disease
kidney stones
research ethics
performance of clinical research/interpreting medical literature
interpretation of renal biopsy pathology
care of short- and long-term PD patients
placement of internal jugular vein and other HD catheters
Sufficient areas (>75% perceived well-trained)
hypertension/complex hypertension
acute glomerulonephritis/nephrotic syndrome
diabetic nephropathy and other glomerular diseases
renovascular disease
electrolyte and acid-base disorders
acute kidney injury/critical care nephrology (including CRRT, short-term HD, and placement of femoral vein HD catheter)
renal physiology
nephrotoxicity of drugs
CKD and its complications
primary care of patients with CKD/ESRD (including in-center ESRD)
care of transplant patients

CKD, chronic kidney disease; CRRT, continuous renal replacement therapy; HD, hemodialysis; PD, peritoneal dialysis.

force in this process. An ASN-sponsored nephrology in-training examination (ITE) modeled after the ABIM blueprint was administered for the first time ever to fellows in 2009 (5). The ITE was a great success, providing TPDs essential information about the overall strengths and weaknesses of the training

program as well as individual fellow performance. A fellow survey at the end of the examination yielded similar information on training program weaknesses, where areas such as plasmapheresis, genetic kidney diseases, renal ultrasonography, peritoneal dialysis, interventional procedures, home hemodialysis, nephrolithiasis, geriatrics, and end-of-life care were deemed insufficient (3). Thus, the ITE can be used as a yearly barometer of the training programs that will allow TPDs to identify deficiencies and institute changes in the core curriculum and training program that target these areas with innovative teaching and evaluation tools.

To address the second and more daunting issue, the ASN has supported collaborative efforts by the TPD Executive Committee and nephrology TPDs to address important areas of fellowship training and meet ACGME directives. In the past few years, ASN sponsored two TPD retreats that allowed the group to identify and work on a number of areas. Included were (1) developing competency-based curriculum, as well as teaching and evaluation tools; (2) training and mentoring new TPDs; (3) increasing peritoneal dialysis training; and (4) improving visibility of nephrology as a career. The ASN further supports these TPD initiatives by creating a web site that makes these initiatives widely available. The creation of a comprehensive geriatrics nephrology curriculum is one example of the society's support. In addition, increased online training and evaluation opportunities can be shared by programs—perhaps with the ASN TPD web site as the portal. Training programs must also find a way to pool resources and develop regional training sites with expertise and large patient populations that cover areas that are deficient in other programs.

The ASN has made an organizational commitment to continue education beyond fellowship training. They sponsor several educational venues and activities, which allow nephrologists to be “life-long learners” (6). These include the 2-day postgraduate education courses, Clinical Nephrology Conferences, and Official Symposia during Renal Week of the annual scientific meeting, the ASN Annual Board Review Course and Update, and the popular Renal WeekEnds. In addition, the flagship publications of the ASN—*JASN*, *CJASN*, and *Nephrology Self-Assessment Program (NephSAP)*—further enhance education and promote member competency. The National Kidney Foundation (NKF) also participates importantly in fellow and practitioner competency through venues such as the NKF Spring Clinical Meeting, publication of Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines, provision of research grants, and a Nephrology Core Curriculum series published in the *American Journal of Kidney Diseases*. The Renal Physicians Association (RPA) is also stepping up with a curriculum that covers training in business and administrative aspects of nephrology. These abundant educational resources allow fellows and nephrologists to fill in any knowledge gaps that may exist during or after completion of fellowship training.

Finally, the ASN is working with the ABIM on the maintenance of certification process. ASN was one of the first specialty societies to develop a self-assessment program (*NephSAP*), which provides an ideal platform for the ABIM and the ASN to work together on maintenance of certification. In 2006, Practice

Improvement Modules were introduced by the ABIM as a more robust way to engage physicians in quality improvement and evaluate competency. The ASN is partnering with the ABIM in this endeavor by helping in the development of Practice Improvement Modules that are of most interest to nephrologists, such as chronic kidney disease, dialysis, and other areas. This cooperation will yield not only a better yardstick for measuring the training foundation that fellows receive but also facilitate important life-long learning that physicians must maintain.

Going forward, nephrology training programs must continue to improve the training of current and future nephrologists. We must focus on recruiting outstanding candidates to our field and use all of the educational resources that are available from the ACGME, the ASN, the NKF, the RPA, and the ABIM. Studies such as the one in this issue of *CJASN*, as well as data garnered from the ITE, are essential to identifying weaknesses in our educational efforts and developing novel evaluation and teaching tools for nephrology in the 21st century. Our patients require and deserve that we as physicians improve our practice of nephrology through ongoing self-evaluation and learning—the study by Berns is a first step in this mission.

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Disclosures

None.

References

1. Accreditation Council for Graduate Medical Education: The ACGME at a glance. Available at: http://www.acgme.org/acWebsite/newsRoom/newsRm_acGlance.asp. Accessed January 4, 2010
2. American Board of Internal Medicine: Who we are. Available at: <http://www.abim.org/about/default.aspx>. Accessed January 4, 2010
3. Berns JS: A survey-based evaluation of self-perceived competency after nephrology fellowship training. *Clin J Am Soc Nephrol* 5: 490–496, 2010
4. Kimmel PL, Bosch JP: Effectiveness of renal fellowship training for subsequent clinical practice. *Am J Kidney Dis* 18: 249–256, 1991
5. Rosner MH, Berns JS, Parker M, Tolwani A, Bailey J, DiGiovanni S, Lederer E, Norby S, Plumb TJ, Qian Q, Yeun J, Hawley JL, Owens S, ASN In-Training Examination Committee: Development, implementation and results of the ASN in-training examination for fellows. *Clin J Am Soc Nephrol* 5: 328–334, 2010
6. Falk RJ, Rosenberg ME, Yee J, Murray PT, Ibrahim T: Helping nephrologists become lifelong learners. *J Am Soc Nephrol* 3: 1238–1241, 2008

See related article, “A Survey-Based Evaluation of Self-Perceived Competency after Nephrology Fellowship Training,” on pages 490–496.