

## Attracting More Residents into Nephrology

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Understanding what attracts trainees to a specialty, in this case nephrology, is elusive. Some factors relate to the individual, their personality and needs; some factors are related to the field, including characteristics of daily work, patient problems, and an individual's experience with nephrology and the people; and other factors are idiosyncratic. The reduced number of nephrology fellowship applicants, and particularly US-educated medical graduates, has recently been documented (1,2). In this issue of *CJASN*, Shah *et al.* (3) report results, analyze trends, and recommend changes based on data from a survey about career choice selection and satisfaction among nephrology fellows. This analysis derives from responses of almost one-quarter of fellows, all of whom were surveyed in June 2011.

### What Have We Learned about Internal Medicine Resident Selection of Future Careers?

Among internal medicine (IM) postgraduate year (PGY)-3 residents surveyed when taking the 2002 in-training examination, Garibaldi *et al.* (4) documented that residents selecting nephrology fellowships were interested in the "opportunity to participate in the care of critically ill patients," "long-term relationships with patients," and higher income (nephrology was viewed as a procedural specialty). Significantly more international medical graduates (IMGs) than US-educated medical graduates were interested in nephrology. West *et al.* (5) identified time with family as the most significant factor in career decisions in a survey of graduating IM residents taking the in-training examination from 2005 to 2007. This factor and long-term relationships with patients were highly ranked by women, and time with family, mentor's subspecialty, and procedures were highly ranked by IMGs. Noteworthy is that nephrology and cardiology were the two subspecialties where mentor's subspecialty was most important, although mentor's subspecialty was less important for the entire group. A Canadian study of subspecialty choice by PGY-3 residents used both survey and focus group methods (6). In Canada, a general internist completes a fourth year and a subspecialist completes a 2- to 3-year fellowship. Overall lifestyle considerations played heavily in selecting a future discipline, but intellectual stimulation, procedures, and a mentor were also important. Women residents identified mentorship by women, either faculty or fellows, in a discipline as particularly helpful. Their availability, both clinical presence and affability, seemed

valuable. Mentoring ("excellent teaching and mentoring by faculty") was the most important factor to the satisfaction of nephrology fellows (3,7). All of us in the nephrology community must expand our skills and commitment to this important aspect of training fellows, residents, and students. Through various formal and informal methods, engaged and skillful mentoring is vital to maintaining and growing the nephrology workforce.

Personal factors, described in surveys as "good match with interests" (4) or "consistent with personality" (6), contribute greatly to fellowship selection, especially for those choosing nonprocedural specialties (the category for nephrology). However, we do not have data about what this really means. Do nephrologists prefer quantitative assessments and documented abnormalities (elevated serum creatinine, hypokalemia, or red blood cell casts) rather than complaints of pain or fatigue in their patients?

### How Can We Attract More Trainees?

The ASN Program for Medical Residents began approximately 14 years ago to provide travel support to the annual ASN meeting. What do we know about the percentage of these residents who selected and then completed nephrology fellowships? Have we surveyed or measured their satisfaction after attending the conference and presumably developing a relationship with their travel grant sponsor during residency?

The ASN program was expanded in 2010 to invite students to the ASN annual meeting, and the first group is now in their PGY-2 training. It will take time to know how many choose nephrology and how satisfied they are. We must follow this group and better understand aspects of their career choices.

An important finding of the article by Shah *et al.* is that 13% of fellows, or more than one in eight, "found nephrology research interesting during medical school or residency" and that was a factor in their career selection (3). Thirty percent of fellows identified opportunities during fellowship "to participate in research and scholarly activities" contributed to their satisfaction. Parker *et al.* (8) also reported that a number of nephrology fellows came to the discipline through research interests and were interested in an academic career. Capturing this interest and cultivating it through further opportunities, such as the Mt. Desert Island Origins of Renal Physiology course, ASN research fellowships, and academic programs such as

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master's degree programs in public health or clinical research, will serve to further the development of the next generation of academic nephrologists and increase fellow satisfaction during training.

Mentorship is often cited as important in career selection and satisfaction. Clinical faculty, whether full-time or voluntary, in contact with students and trainees, must extol the broad nature of the practice of nephrology. We need to share our enthusiasm for the challenge of chronic dialysis, critical care consultations, acid-base or complex electrolyte disorders, and emphasize outcomes for these patients. The care of transplant patients is often an aspect of nephrology practice unseen by students and residents (9). These patients have excellent outcomes and the clinical science is challenging. Interventional nephrology is new, reverses the assignment of nephrology as a nonprocedural subspecialty (7), and may be particularly attractive to some trainees interested in performing procedures (6). We need to expose them to ambulatory patients such as those with polycystic kidney diseases, kidney stones, and glomerular diseases (10).

Complaints by nephrology faculty and fellows to medical students and house staff do not help recruit them to our field (11). Our frustrations and dissatisfactions (12) with funding, regulations, and paperwork need to be directed toward local administrators, national organizations (such as ASN for their public policy work), and our government representatives (for regulatory and legislative change), but not to students and residents. Fellows' dissatisfaction is comparable across all IM subspecialties (7). Shah *et al.* help to unravel specific components of dissatisfaction among nephrology fellows. Long work hours are something we should be able to modify. (In most instances, nephrology fellows do not have in-house call, so these are not work-hours impacted by ACGME rules.) Solutions to our systemic inadequacies in patient transitions (dialysis unit to hospital, vascular access repairs to dialysis unit) need to be addressed (11). Perhaps the current national push to reduce readmissions will facilitate more cohesive systems for our patients. Solutions to dialysis workforce issues need continued efforts (13).

### Proposals to Improve Recruiting into Nephrology

Shah *et al.* suggest a revised nephrology elective including ambulatory exposure. Alternative rotations need to be explored (9,10).

### Nephrology Needs to Continue Developing New Strategies to Educate

UpToDate was started by a nephrologist with nephrology topics. Current efforts to blog and to develop puzzles and games for teaching complex subjects seem equally novel now (14). Nomograms, biomedical ethics, and decision analysis were applied early to nephrology problems. The use of innovative strategies can simplify difficult concepts and aid in review of more traditional teaching, but can also permit students and trainees to see the discipline as forward thinking.

### Enhancing the Teaching of Nephrology

The education category for abstracts at the ASN annual meeting is an attempt to engage the nephrology community

in reaching this goal. Additional examples include the renal physiology educators' listserv, an initiative of the ASN Workforce Committee, and the development of an educational symposium at the annual meeting in November 2012, a combined initiative of several groups. We need to partner with education specialists and monitor these efforts to gain evidence of their effect (15–17).

### What We Need to Learn

Some considerable work remains. We have gaps in knowledge about how renal physiology and pathophysiology are taught and by whom. Do we have data on how many students are exposed to the economic, ethical, and sociocultural questions that arise in nephrology and with the ESRD program, subjects that can be taught in courses addressing those foundations of the practice of medicine? Rosner *et al.* (18) presented data from five medical schools. Seventy percent of fourth-year students had no exposure to nephrology. In residency, what really is the exposure? Do residents participate in consolidated nephrology services, combined medicine/surgery transplant experiences, or nephrology clinics with private and Medicaid patients? With the change in duty hours for residents, time for electives may be reduced. Taken together, these data suggest that some residents finishing IM or pediatrics training have never been involved with nephrology as a clinical discipline.

Shah *et al.* note that many fellows "enjoy intensive care nephrology" and the "association of nephrology with general internal medicine." These qualities seem to mirror the description of Lane and Brown (16) of "focus toward patient well-being," which they went on to summarize as a "holistic as opposed to organ-in-isolation approach." Can we tease out the particular characteristics of these attractors and emphasize and teach toward them?

Lifestyle questions are included in many surveys, but several factors come under that heading: work hours and their predictability (11,12), call and intensity of work during calls, work stress including patient-related stress, and remuneration (3). We need to identify more clearly whether particular aspects of lifestyle are important to trainees, especially women and IMGs, who would otherwise be drawn to the discipline. We need to identify among our clinical colleagues various practice patterns so that trainees can find one that meets their needs. Within the academic community, we also have to insist on flexibility for faculty with family responsibilities to help them achieve work satisfaction and be successful.

Economic issues are also factors. Did falling income contribute to dissatisfaction with nephrology in a 2004–2005 survey of practicing physicians (12)? How does this translate to our trainees? In the article by Shah *et al.*, poor income potential and poor job opportunities after graduation were the two factors listed highest in fellows' dissatisfaction. This complex issue has previously been raised (19). Shah *et al.* imply that hospitalist jobs were somehow subpar for graduating nephrologists, which neglects the intricacies of life for many of our trainees. Those international graduates with training visas need positions that fulfill visa waiver requirements. Few pure nephrology jobs meet them, and some, such as with correctional

systems, may not appeal to most graduates, including IMGs. Graduates with no visa issues might still have reasons to work as a hospitalist, such as being part of a two-career couple with differing graduation dates, off-cycle training as might occur for maternity leave, or failure to meet nephrology board eligibility requirements necessary for a full-time nephrologist position. Nonetheless, we must understand better the market forces in nephrology positions and work to ensure good jobs for graduating fellows.

### Why This Matters

The future of our patients requires high-quality care performed by intelligent and compassionate physicians and assisted by other health care personnel (13,16). The benefits of research breakthroughs and new therapeutic interventions require a workforce of many types of intellect and life experiences, which can only be accomplished with robust recruiting strategies for nephrology. Job satisfaction during one's training and throughout their career will contribute to maintaining a vibrant nephrology workforce.

Nephrology training program directors together with ASN groups and other organizations need to continue to enhance the educational programs for fellows, develop curricula which strengthen them (16,17,20,21), respond to new accreditation standards (22), develop or modify assessment tools that are reliable and easy to use, and expect that fellows will participate in their own education. We need to engage the entire nephrology community to invest in education.

Nonetheless, in the end, students and residents who are not interested in nephrology will exist: we must not alienate them; we must engage them. We do need other specialists to care for our patients.

### Disclosures

None

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See related article, "Career Choice Selection and Satisfaction among US Adult Nephrology Fellows," on pages 1513–1520.