

## Why Not Nephrology? A Survey of US Internal Medicine Subspecialty Fellows

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**Background:** There is a decreased interest in nephrology such that the number of trainees likely will not meet the upcoming workforce demands posed by the projected number of patients with kidney disease. We conducted a survey of US internal medicine subspecialty fellows in fields other than nephrology to determine why they did not choose nephrology.

**Methods:** A web-based survey with multiple choice, yes/no, and open-ended questions was sent in summer 2011 to trainees reached through internal medicine subspecialty program directors.

**Results:** 714 fellows responded to the survey (11% response rate). All non-nephrology internal medicine subspecialties were represented, and 90% of respondents were from university-based programs. Of the respondents, 31% indicated that nephrology was the most difficult physiology course taught in medical school, and 26% had considered nephrology as a career choice. Nearly one-fourth of the respondents said they would have considered nephrology if the field had higher income or the subject were taught well during medical school and residency training. The top reasons for not choosing nephrology were the belief that patients with end-stage renal disease were too complicated, the lack of a mentor, and that there were insufficient procedures in nephrology.

**Conclusions:** Most non-nephrology internal medicine subspecialty fellows never considered nephrology as a career choice. A significant proportion were dissuaded by factors such as the challenges of the patient population, lack of role models, lack of procedures, and perceived difficulty of the subject matter. Addressing these factors will require the concerted effort of nephrologists throughout the training community.

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**INDEX WORDS:** Non-renal fellows survey; nephrology education; mentors; perception of nephrology; internal medicine fellows; nephrology workforce.

### Editorial, p. 529

Interest in obtaining fellowship training in nephrology has declined among US medical graduates during the past decade.<sup>1</sup> In contrast, the number of

available nephrology fellowship positions during the past several years has increased in response to the perceived need for more nephrologists to meet growing clinical demands.<sup>1,2</sup> Thus, there is a disconnect between supply and demand for nephrologists, particularly with regard to US medical graduates pursuing nephrology training.

What are the factors driving this fading interest in nephrology careers? There is no evidence that declining numbers of US medical graduates entering internal medicine residency programs are to blame. According to data obtained from the National Residency Matching Program (NRMP), the percentage of US medical graduates matching into categorical internal medicine residency positions has remained constant over the last 5 years despite a steady increase in the number of internal medicine positions offered in the match from 2008 to 2012.<sup>3</sup> Another possibility is that internal medicine residents may either pursue other specialties or decide not to subspecialize at all, instead choosing careers in general internal medicine or hospital medicine. According to data obtained from the NRMP, there appears to be a small but consistent decrease in the number of applicants applying to internal medicine specialties since 2008.<sup>3</sup> Cardiology, infectious diseases, and gastroenterology have all had

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a small decrease in their ratio of fellowship applicants per position since 2008. Endocrinology has not experienced similar changes during the last 5 years, whereas hematology/oncology has seen a slight increase in the ratio of fellowship applicants per position. Pulmonary/critical care medicine, which originally had seen a decrease in fellowship applicants per position from 2008 to 2011, reversed this trend in 2012.<sup>3</sup> However, nephrology has experienced the steepest decrease in the ratio of number of fellowship applicants per position, from 1.6 to 1.1 from 2008 to 2012.<sup>3</sup> It is unclear why interest in nephrology as a career is declining, but a variety of factors could be contributing to the trend. Putative factors include medical school renal pathophysiology courses that are not stimulating or are difficult to understand, a lack of representative nephrology elective experience during medical school or residency training, inadequate mentorship, the perceived heavy workload and poor remuneration in nephrology, and interaction with nephrology fellows or attending physicians who are less satisfied or dissatisfied with their career choice.<sup>1,4,5</sup>

To address this critical issue, the American Society of Nephrology (ASN) created a task force in 2010 to reverse the declining interest in nephrology. It became evident that input from internal medicine subspecialty fellows who did not choose nephrology as a career would be important. In order to understand why nephrology is less attractive than other internal medicine subspecialties, we surveyed non-nephrology internal medicine subspecialty fellows.

## METHODS

We identified e-mail addresses of all internal medicine subspecialty program directors using the Accreditation Council for Graduate Medical Education database ([www.acgme.org/adspublic/](http://www.acgme.org/adspublic/)). In May 2011, we asked these program directors to forward our survey to their respective fellows and sent reminders in June and July 2011. The survey (Box 1) had 11 questions about respondents' perceptions of nephrology as a career, including their comfort with clinical topics in nephrology and their reasons for choosing their field of interest. The web-based survey branched so that those who had considered nephrology at some point were asked different questions than those who had not. This anonymous survey was web-based and implemented using SurveyMonkey software. The survey was voluntary and allowed respondents to skip questions that they preferred not to answer. There was no incentive to take the survey. This study was deemed exempt by the institutional review boards at both the North Shore–Long Island Jewish Health System and Duke University Medical Center.

## RESULTS

A total of 714 US internal medicine subspecialty fellows completed at least some portion of the survey, which represented ~11% of the total number of non-nephrology fellows enrolled in US internal medicine subspecialty fellowships in 2011. As seen in Fig 1, respondents represented a wide range of specialties

### Box 1. Survey Questions

1. What fellowship program are you in? (99.7%)
  - Cardiology
  - Endocrinology
  - Rheumatology
  - Pulmonary/Critical Care
  - Heme/Oncology
  - Gastroenterology
  - Geriatrics
  - Sleep
  - Palliative Care
  - Infectious Disease
  - Other [free response]
2. What type of training program are you in? (Check all that apply) (99.7%)
  - University-based hospital
  - Community-based hospital
  - Private institution
  - Public institution
  - I am doing research for a large part of my fellowship
  - I am primarily doing clinical duties for most of my fellowship
  - Other [free response]
3. Was nephrology the most difficult physiology course in your medical school training? (99.1%) [yes/no]
4. What is the most difficult topic in nephrology to grasp? (check all that apply) (96.4%)
  - Acid-base
  - Hypertension
  - Electrolyte disorders
  - Glomerular diseases
  - Transplant immunology
  - Dialysis modalities and their complexities
  - Acute kidney injury
  - Other [free response]
5. Did you ever consider doing a nephrology fellowship? (99.4%) [yes/no; if no, skip to question 7]
6. If you had considered nephrology, what changed your mind? (check all that apply) (100%)
  - Concerned about work hours being too much
  - Tried to do nephrology, but didn't match
  - Monetary benefit is not good
  - Fell in love with another field more than nephrology
7. What didn't you like about nephrology?(click all that apply) (71.4%)
  - Too difficult of a subject matter to grasp
  - Not taught well
  - No role model or mentor to guide me toward nephrology
  - Monetary benefit is not good
  - Lifestyle is not good
  - Dialysis and transplant patients are too complicated to take care of
  - Not enough procedures
  - Other [free response]
8. If nephrology was taught well, would you have considered it? (96.2%) [yes/no]
9. If nephrologists had higher incomes than currently, would you have considered it? (98.1%) [yes/no]
10. If you hadn't matched into your current fellowship, was nephrology ever your second choice? (99.2%) [yes/no]
11. Did you know that by 2020, there is estimated to be a shortage of nephrologists? (99.5%) [yes/no]

Note: Response rate is indicated in parentheses.

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