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US Nephrology Workforce Crisis: Our Specialty Must Stay Modern and Relevant

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Abstract: Interest in nephrology as a career choice for physicians in the United States continues to decline, particularly among US medical graduates. Reasons for this are multi-factorial and include nephrology being perceived as difficult, arduous and un-inspiring with poor career prospects. This short paper discusses some aspects of Nephrology that need to be adjusted to attract bright enthusiastic physicians who can move the specialty forward.

Keywords: ASN, education, fellowship, social media.

INTRODUCTION

Interest in nephrology as a career choice for physicians in the United States continues to decline, particularly among US medical graduates (USMGs) [1, 2]. In the most recent match, a staggering 32% of fellowship positions and over half of all programs did not fill [3]. Reasons for this are multi-factorial and include nephrology being perceived as difficult, arduous and not inspiring with poor career prospects [4]. Almost as worrying as the lack of interest in fellowship positions are the fact that a sizeable proportion of actual fellows are not particularly enthusiastic about being nephrologists. A survey of nephrology fellows revealed that over 17% of respondents chose nephrology because they were either less likely to or did not match into the fellowship of their choice [5]. Moreover, they were more likely to be dissatisfied with their career choice as a nephrologist compared to physicians whose first choice was nephrology. This highlights the potentially dire consequences of a lack of interest in the specialty, namely substandard uninterested nephrologists. We need to attract bright enthusiastic physicians who want to treat kidney disease and move the specialty forward and not just fill positions.

INTERNATIONAL MEDICAL GRADUATES (IMGs)

Nephrology has traditionally relied on IMGs to fill positions in nephrology fellowships due to a lack of interested USMG candidates. Career prospects for IMGs have become increasingly bleak with several unique obstacles for IMGs to negotiate [6]. These include draconian visa requirements (especially with the ubiquitous J-1 visa) and exclusion from major funding sources unless permanent residence status has been established. Furthermore, IMGs who are not residents of US cannot sit for the Internal Medicine and special board exams. Many IMGs, including myself, come from health systems where nephrology is a competitive and highly sought fellowship. When reimbursement is removed as a factor influencing career choice (as in national healthcare systems), nephrology rises towards the top of the pile of competitive fellowships. Research from the UK between 2005-2006, demonstrated nephrology had a broadly similar competitiveness (% positions/applicants; therefore lower percentage=more competitive) to cardiology, gastroenterology and endocrinology (28% *vs* 23, 24, 27%) (see Table **1**) [7]. Moreover, nephrology was more competitive than radiology (31%), hematology (36%), infectious diseases (38%), oncology (39%), neurology (41%), critical care medicine (50%) and rheumatology (68%). The corresponding US figures for 2006 were 372 positions and 766 applicants (competitiveness score of 48.5% *vs* 28% for the UK) [8]. As

Table 1. Competitiveness (% positions/applicants) analysis for nephrology fellowships.

Specialty	Competitiveness (% Positions/Applicants)
Cardiology	23
Gastroenterology	24
Endocrinology	27
Nephrology UK	*28*
Radiology	31
Hematology	26
Infectious diseases	38
Oncology	39
Neurology	41
Nephrology US	*48.5*
Critical care medicine	50
Rheumatology	68

Note that a lower percentage=more competitive. All data is from UK fellowships except Nephrology US. UK figures 2005-2006, US data 2006.

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an IMG, having personally experienced the barriers to practice and perform research in the US, I am acutely aware of the huge potential to improve opportunities for interested, well-qualified IMGs. We obviously need to concentrate on increasing interest among USMGs but we cannot turn our back on other enthusiastic physicians who should be seen as an asset to the US health care system and encourage rather than marginalize them.

PUBLICIZING NEPHROLOGY

The future nephrology workforce that we need to attract consists of current medical students and internal medicine residents. Many of these young physicians have a poor view of nephrology as a specialty [9] for the reasons mentioned above. Certainly nephrology is a challenging specialty with a sick patient cohort but it is important that we publicize the positive elements to the career of a nephrologist. We have a public relations campaign to wage. The fun parts of nephrology including glomerular diseases, histopathology, transplantation and electrolyte management need to be emphasized on clinical rotations [10]. Exposure to nephrology on clinical rotations is often limited to busy consult rounds where the nephrologist may be treated like a dialysis technician by some primary services. Residents have exposure to ESRD patients exclusively as inpatients where they help manage access problems, sepsis and cardiovascular events in sick patients with multiple co-morbidities. It is no wonder a nihilistic attitude towards nephrology may be harvested at this early stage of a physician's career. Our success stories, such as peritoneal dialysis, home hemodialysis and transplantation, are rarely encountered. Moreover, when they are encountered, it is when things go wrong. We need to transfer nephrology exposure to the clinic, to the community where many of our patients are thriving and not just existing [10].

Another aspect to publicize nephrology involves being actively involved or the primary caregiver in clinical situations which cross-over with other specialties. In my opinion, nephrologists should play a leading role in management of lupus nephritis and ANCA-associated vasculitis, in managing patients with cardiorenal syndrome, not just when they need dialysis and running plasmapheresis services. Obviously not all nephrologists can or want to be involved in every aspect of the specialty but the more diverse nephrology is, the more attractive it will become to young physicians. Although it is our 'bread and butter', we cannot let our scope of practice regress into the exclusive provision of renal replacement therapy alone.

MODERN EDUCATIONAL METHODS

Teaching our students and residents is our opportunity to sell this specialty to the future of medicine. We have a major responsibility to make the learning experience valuable, even fun, and to demonstrate the breadth of the nephrology to our students. To achieve these goals in the modern era, it is critical that both our educational content and, more importantly, our delivery stay relevant to current students and residents. Current teaching techniques, consisting of internet-based learning tools, are where students are increasingly getting their knowledge. Mainstream nephrology educators have yet to embrace these ideas and there is a small but vocal online community who are active on nephrology blogs, wikis and social media outlets. There are now several online resources for nephrology education including the ASN website, UKidney, Nephrology On-Demand, the NephPearls initiative and successful blogs such as Renal Fellow Network (run by fellows), eAJKD, Precious Bodily Fluids and Nephron Power [11]. Features of these online resources, as well as other nephrology websites, were examined by Desai *et al.* [12].

Social media sites such a Twitter allow instant notification of new articles with running live commentaries, a form of real-time open access peer review. These modern methods of teaching have been associated with positive learning behaviors amongst students, stimulating reflection and integrating the students in the construction of their knowledge [13]. Many students report more confidence when commenting and giving their opinion on academic content *via* the Internet rather than in person [14]. Even the establishment is getting involved with CJASN's online e-Journal Club and an active American Society of Nephrology (ASN) Twitter account. However, I feel the ASN needs to go further and continue to develop their social media/online education content. An integrative approach to social media involving communication with the community is a key to success. Analysis of ASN Twitter activity from Kidney Week 2011 demonstrated its struggle to establish networks [15] and it may be thought of as a one-way account lacking interaction. An ASN director of social media would be a place to start who could co-ordinate online learning with social media and help to attract young nephrologists. Medical students and young physicians use these web resources and will continue to look for their medical knowledge online and using non-traditional methods. This is where we can teach, interact with and influence the future nephrology workforce.

SUMMARY

Unfortunately none of what I have discussed in this article offers a quick fix for increasing interest in our specialty and filling training positions. The senseless obstacles for IMGs to practice are a problem throughout US medicine, although nephrology is increasingly dependent on these physicians and has more to lose by restricting their opportunities. Improvement on this issue will require desire at a federal level which appears unlikely, at least at this time-point. What is under our control is publicizing the merits of nephrology as a career choice and teaching in a modern and interactive way. This will require an attitude change by the current leaders of our specialty. The nephrology community must stay relevant in the changing healthcare environment, publicize the benefits of practicing nephrology and be creative in our teaching methods to attract our future colleagues.

CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

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REFERENCES

[1] Parker MG, Ibrahim T, Shaffer R, *et al*. The future nephrology work force: will there be one? Clin J Am Soc Nephrol 2011; 16: 1501-6.

[2] Mehrotra R, Shaffer RN, Molitoris BA. Implications of a nephrology workforce shortage for dialysis patient care. Semin Dial 2011; 24: 275-7.

[3] ASN Analysis of 2015. Nephrology match. [Accessed 8th May 2015]. Available from: https://www.asn-online.org/education/training/workforce/?fresh=0.2837584500666708

[4] Jhaveri KD, Sparks MA, Shah HH, *et al*. Why not nephrology? A survey of US internal medicine subspecialty fellows. Am J Kidney Dis 2013 ; 61(4): 540-6.

[5] Shah HH, Jhaveri KD, Sparks MA, *et al*. Career choice selection and satisfaction among US adult nephrology fellows. Clin J Am Soc Nephrol 2012; 7(9): 1513-20.

[6] American Medical Association IMG Governing Council. International Medical Graduates in American Medicine: Contemporary Challenges and Opportunities. Washington, DC: American Medical Association 2010.

[7] McNally SA. Competition ratios for different specialties and the effect of gender and immigration status. J R Soc Med 2008; 101(10): 489-92.

[8] Kohan DE, Rosenberg ME. Nephrology training programs and applicants: a very good match. Clin J Am Soc Nephrol 2009; 4(1): 242-7.

[9] Parker MG, Ibrahim T, Shaffer R, *et al*. The future nephrology workforce: will there be one? Clin J Am Soc Nephrol 2011; 6(6): 1501-6.

[10] Jhaveri KD, Shah HH, Mattana J. Enhancing interest in nephrology careers during medical residency. Am J Kidney Dis 2012; 60(3): 350-3.

[11] Sparks MA, O'Seaghdha CM, Sethi SK, *et al*. Embracing the Internet as a means of enhancing medical education in nephrology. Am J Kidney Dis 2011; 58(4): 512-8.

[12] Desai T, Christiano C, Vachharajani T, *et al*. Nephrology “e” Learning Made “e” asier. Open Urol Nephrol J 2011; 4: 12-15. http://www.benthamscience.com/open/tounj/articles/V004/12TOUNJ.pdf

[13] Hollinderbäumer A, Hartz T, Uckert F. Education 2.0 -- how has social media and Web 2.0 been integrated into medical education? A systematical literature review. GMS Z Med Ausbild 2013; 30(1): Doc14.

[14] Hansen M, Oosthuizen G, Windsor J, *et al*. Enhancement of medical interns' levels of clinical skills competence and self-confidence levels *via* video iPods: pilot randomized controlled trial. J Med Internet Res 2011; 13(1): e29.

[15] Shariff AI, Fang X, Desai T. Using social media to create a professional network between physician-trainees and the American Society of Nephrology. Adv Chronic Kidney Dis 2013; 20(4): 357-63.

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