

The US Pediatric Nephrology Workforce: A Report Commissioned by the American Academy of Pediatrics

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The US pediatric nephrology workforce is poorly characterized. This report describes clinical and nonclinical activities, motivations and disincentives to a career in pediatric nephrology, future workforce needs, trainee recruitment, and possible explanations for personnel shortages. An e-mail survey was sent in 2013 to all identified US-trained or -practicing pediatric nephrologists. Of 504 respondents, 51% are men, 66% are US graduates, and 73% work in an academic setting. About 20% of trained pediatric nephrologists no longer practice pediatric nephrology. Among the 384 respondents practicing pediatric nephrology full or part-time in the United States, the mean work week was 56.1 ± 14.3 hours, with time divided between patient care (59%), administration (13%), teaching (10%), clinical research (9%), basic research (6%), and other medical activities (3%). Most (>85%) care for dialysis and transplantation patients. The median number of weeks annually on call is 16, and 29% work with one or no partner. One-third of US pediatric nephrologists (n = 126) plan to reduce or stop clinical nephrology practice in the next 5 years, and 53% plan to fully or partially retire. Almost half the division chiefs (47%) report inadequate physician staffing. Ongoing efforts to monitor and address pediatric nephrology workforce issues are needed.

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INDEX WORDS: Pediatric nephrology; workforce; physician shortage; staffing adequacy; health services needs; health care worker maldistribution; work-life balance; workload; physician motivation; medical career; fellowship training; fellows; American Academy of Pediatrics (AAP).

BACKGROUND

Serious concerns exist about the adequacy of the American pediatric nephrology workforce due to a high number of potential retirees and difficulty recruiting trainees. According to American Board of Pediatrics (ABP) data, pediatric nephrologists are the oldest group of pediatric subspecialists, with a mean age of 57.8 years as of the end of 2013.¹ The last decade has seen a significant increase in the number of pediatric nephrology trainees, with an average of 43 third-year fellows over the last 3 years versus 19 third-year fellows during the 3-year period ending in 2004. However, partially due to an increase in fellowship programs, 43% of first-year fellowship positions were unfilled in the subspecialty resident match between 2010 and 2014.² Thus, there may not be adequate qualified trainees available to address the aging workforce. Similar workforce issues, especially a marked decrease in trainee applicants, are of great concern to internal medicine nephrology.²⁻⁶

A 2008 survey of pediatric nephrology fellows found that workload, faculty dissatisfaction, and poor financial compensation were perceived as negative elements to a career in pediatric nephrology.⁷ A 2012 survey of pediatric subspecialty fellows who chose subspecialties other than nephrology found that a lack of positive mentoring and the perception of nephrology as a challenging subject, especially among women trainees, were primary disincentives to

pursuing nephrology.⁸ Women, who presently make up >70% of pediatric residency trainees, are less likely than men to choose a subspecialty or a research career and more likely to prefer part-time work.⁹

Workforce adequacy concerns are compounded by the growing demand for pediatric nephrology services as care becomes more sophisticated and children with chronic conditions survive kidney-related complications.^{10,11} Consequently, a need exists to accurately characterize the pediatric nephrology workforce, obtain data on workload, and identify the perceived strengths and weaknesses of a pediatric nephrology career.

The American Academy of Pediatrics (AAP) conducts periodic workforce surveys of pediatric medical subspecialists and surgical specialists; however, the AAP had previously not studied pediatric nephrology.

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The AAP Division of Workforce and Medical Education Policy, the AAP Section on Nephrology (SONp), and the American Society of Pediatric Nephrology (ASPN) collaborated to develop and analyze this survey, which is the first comprehensive survey of the American pediatric nephrology workforce.

SURVEY METHODOLOGY

Questions common to pediatric subspecialists were developed by the AAP Division of Workforce and Medical Education Policy. These address training, clinical practice, and demographic characteristics and are being asked of many pediatric subspecialty groups in order to characterize the larger pediatric subspecialty workforce and allow comparisons between subspecialties. We created 44 additional questions specifically for pediatric nephrologists (Item S1, available as online supplementary material). These questions were reviewed and refined by members of the Workforce Committee of the ASPN and the Executive Committee of the AAP SONp. Some questions, including queries about physician staffing, hiring plans, and number of ancillary division staff, were asked only of division directors or solo practitioners.

Surveys were sent in spring 2013 to anyone with an active e-mail address who was ever ABP board eligible in pediatric nephrology or was a member of the ASPN or the AAP Section on Nephrology at the time of the survey. Current trainees were not included. Four reminder e-mails over 2 months were sent to nonresponders.

Data analysis was performed using SPSS, version 18.0 (IBM). Descriptive statistics, including frequency distributions and measures of central tendency, were used to summarize all responses to the survey. Bivariate relationships were tested for statistical significance using χ^2 , Fisher exact, or *t* test, as appropriate. Results are expressed as count with percent or mean \pm standard deviation.

The survey was deemed exempt by the Institutional Review Board of the AAP because survey respondents were anonymous.

RESULTS AND DISCUSSION

Overview of Survey Participants

The survey was sent to 766 physicians, and 504 surveys were completed fully or in part (65.8% response rate). Fifty-one percent of respondents are men; however, women are the majority (62%) of those who graduated from medical school within the last 15 years (Fig 1). Seventy percent are Caucasian, 21% are Asian, and 4% are black. Most (66%) are US medical school graduates and 79% are ABP-certified in pediatric nephrology.

There are 409 respondents who are involved in some aspect of pediatric nephrology at least part-time

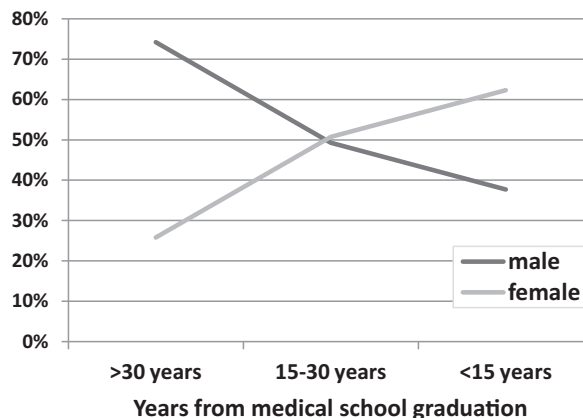


Figure 1. Pediatric nephrologists by sex and years since medical school graduation.

($\geq 25\%$ of the time). Based on postal codes, 384 practice in the United States; 14, in Canada; and the rest, outside North America. Twelve respondents practice primary care pediatrics $>75\%$ of their time.

Pediatric Nephrology Practice

The mean reported work week for the 384 US-based pediatric nephrologists is 56.1 ± 14.3 hours, with a median of 60 hours (Table 1). Men work a mean of 56.5 ± 16.4 hours, and women, 53.0 ± 13.8 hours ($P = 0.01$). Pediatric nephrologists are on call a median of 16 weeks and 14 weekends annually. Most (58%) take call alone, and the rest, with a fellow either all (16%) or part (26%) of the time. US pediatric nephrologists work in the outpatient clinic a median of 3 (interquartile range, 2-5) half-days weekly.

Table 2 summarizes the activities of the 384 US pediatric nephrologists who were practicing at least part-time ($\geq 25\%$ of the time). Nearly all pediatric nephrologists (98%) participate in patient care. Most teach (88%), do administrative work (80%), and perform clinical research (63%). A minority participate in basic science research (14%) and health

Table 1. Pediatric Nephrology Practice

	No. Responding	Mean	Q1	Q2	Q3
Hours worked weekly	381	56.1	50	60	60
Group size ^a	369	4	2	4	6
Weeks on call per year (Monday-Friday)	352	18.2	10	16	26
Weekends on call per year	355	17.2	10	14	23
Half-day clinics weekly	376	3.4	2	3	5

Note: Based on 384 pediatric nephrologists who were practicing at least part-time pediatric nephrology ($\geq 25\%$ of the time) in the United States.

Abbreviation: Q, quartile.

^aNumber of pediatric nephrologists in the practice.

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