

# Pediatric Nephrology Training Worldwide 2016: *Quantum Educatus?*



**To the Editor:** Pediatric nephrology training is, by necessity, extensive. Pediatric nephrologists typically care for highly complex patients in tertiary academic medical centers, where they provide consultation and direct care to inpatients and outpatients and provide vital services to critically ill children. In most settings, practicing pediatric nephrologists also teach medical students, pediatric trainees, and nurses. Preparing neophyte pediatric nephrologists requires extensive education and experience in both inpatient and outpatient settings, as well as exposure to research, research methods, and faculty development.

A high degree of perceived workforce inadequacy and difficulty recruiting pediatric nephrology trainees exists in most regions of the world.<sup>1</sup> Concern about workforce adequacy in the United States has generated a discussion as to whether offering a shortened 2-year clinical track, as in adult nephrology, would increase the number of fellowship applicants. There is considerable tension, however, between meeting clinical training needs and the desire for pediatric nephrologists to be trained in research, since most work in academic settings.

Requirements for qualification as a pediatric nephrologist vary from country to country. This report is a “snapshot” of requirements for training and certification for pediatric nephrologists around the world as of the beginning of 2016. This report also contains data on the opinions of U.S.-trained pediatric nephrologists on the value of a 2-year versus a 3-year fellowship.

## METHODS

This report is based on e-mail contact with selected pediatric nephrologists worldwide and a separate survey of U.S.-trained pediatric nephrologists.

### E-mail Contacts

E-mail messages were sent to pediatric nephrologists in countries with  $\geq 25$  contacts listed in the on-line International Pediatric Nephrology Association (IPNA) member directory<sup>2</sup> and selected countries where pediatric nephrology training occurs. No queries were sent to the United States, since the authors could provide the required data. IPNA councilors and IPNA Committee members were preferentially queried because

they are usually representatives of the pediatric nephrology societies or considered representative of the pediatric nephrology community in their country. There are currently 42 IPNA councilors and officers representing 22 countries. If no IPNA member met those criteria, if no response was received, or if conflicting information was provided, random IPNA members were selected to receive the e-mail. The email asked for the number of years of medical school, years of pediatric training, and years of pediatric nephrology fellowship required in the contact’s country, and whether a certifying board exists.

### American Academy of Pediatrics (AAP) Survey

In Spring 2013, all pediatric nephrologists who had ever been American Board of Pediatric (ABP) Nephrology eligible, were members of the American Society of Pediatric Nephrology (ASPN), or were members of the American Academy of Pediatrics Section on Pediatric Nephrology (SONp) received an e-mail survey. Detailed results of this survey have been published.<sup>3</sup> However data from the following question was not included in the published report: “There is discussion about offering 2 fellowship tracks—a traditional 3-year academic track and a 2 year clinical track as in adult nephrology. In your opinion, would this be wise for pediatric nephrology? Please feel free to share any comments you have about this possibility.” (Supplement Q.43) For this report, we collected and analyzed all free text responses to this survey question.

## RESULTS

**Table 1** lists the number of years required for medical school, pediatric training, and pediatric nephrology fellowship in all countries with  $\geq 25$  contacts in the online IPNA directory as of the end of 2015, as well as several smaller countries with  $< 25$  IPNA contacts but with robust pediatric nephrology services. Responses were received from all 31 countries queried, with the exception of Indonesia. The number of years of medical school varies according to the amount of education required before entry. Similarly, the number of years of pediatric experience as prequalification to entry to pediatric nephrology training varies based on the length of medical school. Many countries require a period of rotating internship prior to pediatric training. About two-thirds of surveyed countries have some form of formal certification for pediatric nephrologists, and most require 3 years of specific pediatric nephrology training. The February 2015 ESPN guidelines<sup>4</sup> and the 2014 Australian and New Zealand

**Table 1.** Length of training required for pediatric nephrology certification

Country	Medical school	Pediatric training	Pediatric nephrology	Certification	No. IPNA contacts
U.S.	4	3	3	Yes	720
Japan	6	5	3	Yes	278
Brazil	6	3	2 or 3	Yes	124
India	5	1 rot/3 ped	3 mo–2 yr	Yes <sup>a</sup>	102
United Kingdom	5 or 6	2 or 5	3	No	98
Germany	6	4 or 5	3 <sup>b</sup>	Yes	77
Turkey <sup>3</sup>	6 <sup>c</sup>	4	3	Yes	63
Argentina	6 or 7	4 or 5	3	Yes	57
Canada	3 or 4	3 or 4	2	Yes	55
China	5 or 8	3	3	No	53
Italy	6	5	2 to 3	No	52
France	7	4	2	No	49
Australia	6	1–2 rot/3	3	Yes	43
Netherlands	6	4.5	2.5	Yes	42
Spain	6	3 or 4	1	No	41
Saudi	7	1 rot/4 ped	2	Yes	39
Mexico	6	3	2	Yes	37
Russia	6	1–2	4 mo–2 yr	??	35
Nigeria	6	5 to 7	Not specified	No	35
Philippines	4	1 rot/3 ped	2	Yes	30
Belgium	6	4 to 5	Abroad	No	30
Egypt	6	1 rot/3 ped	2	Yes	28
Chile	7	3	2	Yes	27
Columbia	6	3	2	No	26
Korea	6	5	1 or 2	Yes	25
Indonesia				Yes	35
Switzerland	6	3	3	Yes	18
Israel	5	4.5	2.5 <sup>d</sup>	Yes	18
Norway	6	5	No	No	13
Hungary	6	5	2	Yes	12
Hong Kong	5	7	3	No	15

rot, Rotating years.

Data are given as years unless otherwise noted.

<sup>a</sup>3 Years for DM degree.

<sup>b</sup>1 Year pediatrics included in fellowship.

<sup>c</sup>7 Years medical school if cannot pass English.

<sup>d</sup>6 Months dialysis training required.

guidelines<sup>5</sup> recommend that all countries in those regions have a minimum of 3 years for certification.

The AAP survey was sent to 766 pediatric nephrologists. The response rate for the question whether a 2-year fellowship option is wise was 59%, with 49% of respondents in favor, 34% opposed, and 17% unsure. There were 176 free text comments, indicating intense interest in this controversy. Prominent themes (Table 2) in support of a 2-year fellowship were a perceived need for more clinicians, attracting potential clinical trainees, and limiting the financial and time burdens of the third year of training.<sup>6</sup> Themes opposed to the change include the need for research training to understand progress, need for research in understanding and treating disease, and worries about possible development of a 2-tier system. Some commented that a clinical pediatric nephrologist can be trained in 12 to 15 months, whereas others commented

**Table 2.** Pros and cons of a 2-year fellowship in pediatric nephrology

In favor of 2-year training	Opposed to 2-year training
Concentrated clinical training, allowing more skilled clinicians	Not enough time to learn all the skills required
Research opportunities have all but dried up for clinicians	Research training is valuable for academic research career and informs and enhances experience as a clinician
Poor financial support for research	Will slow or even halt pediatric research findings
Make the specialty more attractive, since we need more pediatric nephrologists	Pediatric academic status will diminish
2 Years would be sufficient	Treated as inferior to the 3-year academic nephrologist
	Research is essential, and third year expands critical thinking and clinical and research tools of the trainee
Not everyone wants to have an academic research career	Pediatric academic status will diminish
	The strength of Pediatric Nephrology lies in its academic focus
Enter the workforce sooner and less expense to the trainee	Compensation is the issue not the length of training

that 3 years is not long enough because of the rarity of many of the conditions treated. Of the 102 self-identified pediatric nephrology program directors, 59 thought that a 2-year track was a wise option, 36 were opposed and 7 were undecided.

## DISCUSSION

Training requirements for pediatric nephrologists differ from country to country, but 3 years post pediatric training is most common. Variation in prequalification requirements for nephrology training is often based on the amount of education before commencing medical school or general pediatric training.

The ABP Nephrology has mandated a 3-year training period for certification since the 1970s in a program approved by the Accreditation Council for Graduate Medical Education (ACGME).<sup>7,8</sup> The trainee must develop competence in all aspects of clinical pediatric nephrology and, since 2004, meet the criteria in “Principles Regarding the Assessment of Scholarly Activity.”<sup>9</sup>

Under the auspices of the ESPN, most European countries are in the process of adopting uniform minimal standards for pediatric nephrology training of 3 years, with at least the equivalent of one-half day per week devoted to research training.<sup>4</sup>

The United Kingdom has a well-defined pediatric nephrology training structure with carefully monitored progression of the trainee.<sup>10,11</sup> The availability of training positions is correlated with estimated workforce needs through the National Training Numbers (NTN) Grid Scheme of the Royal College of Pediatrics and Child Health (RCPCH).<sup>12</sup> The fully trained pediatric nephrology consultants are supplemented by Pediatricians with a Special Interest in Nephrology (SPINs).<sup>13</sup>

In India, nephrology training can vary from 3 months to 3 years, with the latter required for certification with a DM degree. In India, a medical school graduate receives a Bachelor of Medicine and Surgery degree (MBBS) upon completion of medical school, an MD degree upon completion of specialty training such as general pediatrics, and a DM degree after completion of subspecialty training. The duration and intensity of training varies with the nephrology responsibilities that the trainees are anticipated to assume.

Australia and New Zealand guidelines require 3 years of pediatric nephrology training, including 3 months of developmental and psychosocial training.<sup>5</sup> Several respondents commented that because obtaining a consultant pediatric nephrology position in this region is very competitive, prospective pediatric nephrologists often need additional advanced degree(s) in addition to completing nephrology training and certification.

In the United States and Canada, concerns exist about workforce adequacy.<sup>1,14–16</sup> In 2015, only 30% of pediatric nephrology fellowship positions were filled in the National Residency Matching Program (NRMP), which improved slightly to 44% in the 2016 match.<sup>17</sup> Pediatric nephrology recruitment compares unfavorably to other pediatric subspecialties, with only child abuse having a lower percentage of positions filled in 2016. Both adult and pediatric nephrology in the United States are having difficulty attracting qualified applicants, with the number of applicants per adult nephrology fellowship position between 2012 and 2016 dropping from 1.1 applicants per position to 0.6 and in pediatric nephrology from 0.7 to 0.5.<sup>17</sup> This disturbing trend suggests that factors other than length of training discourage young physicians from choosing nephrology.<sup>1,6,15</sup>

E-mail contacts sometimes provided conflicting data on pediatric or pediatric nephrology training requirements, creating a potential limitation on the accuracy of the data presented. In part, this may be due to the recent changes in recommendations for pediatric nephrology training discussed above. In an effort to obtain the most authoritative data, IPNA councilors and committee members were preferentially queried.

In conclusion, after completion of general pediatric training, 3 years is the most common duration of pediatric nephrology fellowship and recently has become the new minimal recommendation in Europe, Australia, and New Zealand. Some countries with centralized medical systems, such as the United Kingdom, base the number of training positions available upon projected workforce needs. In other IPNA countries, variation in the duration of pediatric nephrology training relates to anticipated clinical expectations. Because of concerns about a potentially

inadequate workforce, many North American pediatric nephrologists wonder if a 2-year clinical track should be considered.

William A. Primack<sup>1</sup>, Dorey A. Glenn<sup>1</sup> and Kevin E.C. Meyers<sup>2</sup>

<sup>1</sup>Nephrology Division, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, North Carolina, USA; and

<sup>2</sup>Nephrology, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA

Corresponding author: E-mail: [wprimack@med.unc.edu](mailto:wprimack@med.unc.edu)

## DISCLOSURE

All the authors declared no competing of interests.

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## SUPPLEMENTARY MATERIAL

2013 American Academy of Pediatrics nephrology workforce survey.

Supplementary material is linked to the online version of the paper at [www.kireports.org](http://www.kireports.org).

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