

Timing and Stability of Fellowship Choices during Pediatric Residency: A Longitudinal Survey

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Objectives To determine, among pediatric residents, the timing and stability of decisions to pursue fellowship training and select a specific subspecialty, which can be used to inform strategies to better match the distribution of pediatric subspecialist with the needs of children.

Study design A longitudinal survey administered with the General Pediatrics In-training Exam to pediatric residents in the US and Canada, 2010-2014. The study included residents who responded in each of their first 3 years of residency and indicated plans to enter fellowship or matriculated, 2013-2016, into 1 of the 14 medical subspecialty fellowships for which the American Board of Pediatrics grants a certificate. Descriptive and χ^2 statistics were calculated.

Results Of the 7580 residents who completed 3 annual surveys (response rate 99%) 4963 (65.5%) indicated plans to pursue fellowship training and 2843 (37.5%) matriculated into fellowship. Residents who did not enter fellowship were in smaller residency programs and programs with less interest in fellowship among interns. Most residents who matriculated into fellowship (68.4%) planned to do so as interns and maintained that plan throughout residency. In contrast, 22.7% had selected a specific subspecialty as interns. Fellowship decisions were made later in residency by female residents, American Medical Graduates, and residents in programs where <50% of interns planned to pursue fellowship training. Timing and stability of decisions varied across subspecialty fields.

Conclusions Understanding the timing of pediatric medical subspecialty fellowship decisions could be used to shape medical education and, ultimately, the pediatric workforce. (*J Pediatr* 2018;■■■:■■■-■■■).

Although the number of children in the US has remained stable over time, the number of children surviving with complex chronic conditions has increased,¹⁻³ and the pediatric medical subspecialist workforce may not be sufficient to address the needs of all children.⁴⁻⁸ Concerns about the pediatric subspecialist workforce persist despite more pediatric residents expressing interest in, pursuing, and completing fellowship training over the past 20 years.⁹⁻¹¹ Although the total number of subspecialty fellowship trained pediatricians obtaining initial board certification doubled between 2000/2001 and 2014/2015, the number of pediatricians trained within each of the medical subspecialties varies widely.¹² The relative paucity of pediatric subspecialists in certain areas may reflect that some subspecialty disciplines face difficulty recruiting residents into their field and that existing fellowship training positions go unfilled.⁶

Previous research has explored factors associated with the decision to pursue subspecialty training.^{9,10,13-18} However, little is known about the timing and stability of career decisions among residents who ultimately enter pediatric medical subspecialty fellowships. Understanding when pediatric residents make their career decisions to pursue such training will provide clarity to medical educators and policy makers who seek to impact the distribution of subspecialists across disciplines to better address the needs of the child population.

In this study, we sought to address this information gap by comparing demographic and residency program characteristics among residents who expressed the intention during residency to pursue fellowship training and did or did not actually enter fellowship training in an American Board of Pediatrics (ABP)-certified medical specialty. In addition, our data allow us to prospectively determine when residents selected a specific subspecialty and whether they changed career plans during residency training. We hypothesized that there would be variation in timing of these decisions across different subspecialties and potentially between respondents based on demographic and residency program characteristics.

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ABP American Board of Pediatrics
AMG American Medical Graduate
IMG International Medical Graduate
ITE General Pediatrics In-training Exam

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Study Design

Our sample was composed of all individuals who responded to the ABP General Pediatrics In-training Exam (ITE) Survey questions administered in July of each of their first 3 years of residency training between 2010 and 2014 and indicated plans to enter fellowship training in at least 1 of the ITE Surveys or matriculated into pediatric medical subspecialty fellowship training between 2013 and 2016 in 1 of the 14 programs for which ABP grants a certificate. Residents who took time off from training before starting a fellowship between 2013 and 2016 were included. Fellowship training information was available only for those who entered a subspecialty that is certified by the ABP. Therefore, individuals who entered fellowship in subspecialties certified by other Boards (eg, allergy and immunology, which is certified by the American Board of Internal Medicine) or that did not grant a certificate during the study timeframe (eg, hospitalist medicine) could not be identified.

Survey. Since 2007, the ABP has conducted an annual survey of all pediatric resident physicians (including categorical and combined program trainees) in the US and Canada.^{10,14} The structured questionnaires contained fixed-choice, single-response items designed to be completed in 10 minutes or less. Questionnaires are administered in July at the beginning of each residency training year as an optional addendum to the ITE, a required component of residency training. Questions are primarily designed to inform ABP operations. The same questions are asked each year. In this study, we focused on questions related to the decision to pursue subspecialty fellowship training and the choice of a specific subspecialty (Table 1; available at www.jpeds.com). This study was approved by the institutional review board at the University of Michigan Medical School.

Variables. A limited set of demographic characteristics are available in the dataset and include sex, age at the start of residency training, and American medical graduate (AMG) or international medical graduate (IMG) designation. We determined residency program size by calculating the average number of residents who completed the ITE per year from 2010 to 2014. On average, small residency programs were designated as those with ≤ 30 residents, medium programs had 31-60 residents, and large programs >60 residents who completed the ITE each year. We further characterized residency programs based on the proportion of interns ($<50\%$ vs $\geq 50\%$) who responded that they intended to pursue fellowship training as a measure of peer norms for career decisions.

We identified the subspecialty field entered by each individual who matriculated into an ABP-certified fellowship training program. There were 21 individuals who entered a combined adult/pediatric fellowship program. We analyzed their responses within the respective pediatric subspecialty group (eg, adult/pediatric endocrinology were analyzed with pediatric endocrinology). There were 6 individuals who arranged individualized multispecialty combined fellowship training. For analyses, we grouped these individuals with the most prevalent of the fellowship programs that they entered

(eg, combined critical care medicine/infectious disease was grouped with critical care medicine).

Timing and Stability of Decisions. We first categorized those residents who at any time indicated a plan to pursue fellowship training as having matriculated into ABP-certified fellowship training programs or not. We then categorized those who matriculated into fellowship training programs according to when they first indicated a stable decision (ie, never changed their mind on subsequent surveys) to pursue fellowship training (first, second, or third year of residency). We also identified 2 additional groups of residents: those who never indicated plans to pursue fellowship training in any survey and those who had indicated they changed plans about fellowship training during the course of residency. Residents were considered to have changed plans if they indicated a career path other than fellowship training after selecting fellowship training in a previous year or if they subsequently responded affirmatively to the question "Have you changed your mind in the last 12 months regarding what you plan to do after residency?" Thus, there were a total of 5 groups of residents for analysis. We took a similar approach to categorize respondents according to the timing of their selection of a specific subspecialty (ie, July of their first, second, or third year of residency; never; changed plans).

Statistical Analyses

Descriptive statistics were calculated for demographic and residency characteristics of respondents who did not matriculate into fellowship, those who indicated plans and did matriculate into fellowship, and those who did not indicate plans and did matriculate into fellowship. Statistical comparisons were not made due to the small sample size ($n = 62$) of individuals who never indicated plans to pursue fellowship but did matriculate into fellowship. We used χ^2 statistics to compare demographic and residency characteristics of respondents across the 5 groups (first year, second year, third year, never indicated, and changed plans) used to categorize the timing and stability of decision to pursue fellowship training and selection of a specific subspecialty. We then calculated the percentage of individuals across the 5 groups within each subspecialty. Analyses were completed with SAS 9.4 (SAS Institute Inc, Cary, North Carolina). P values $< .05$ were considered statistically significant.

Results

From 2010 to 2014, there were 7580 residents who completed 3 surveys in July of their first, second, and third years of residency (99% response rate). Of these, 4963 (65.5%) indicated a plan to pursue fellowship training in at least 1 year. There were 2843 residents who entered 1 of the 14 ABP-certified pediatric medical subspecialty fellowship training programs in 2013-2016. Including 2781 residents who entered fellowship after indicating plans to pursue fellowship training and 62 who entered fellowship without indicating plans to pursue fellowship training in any of the surveys.

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