

## Career Decision-Making among Pediatric Residents

Laura Dattner, MD\* and Philip O. Ozuah, MD, PhD†

\*Department of Pediatrics  
S.U.N.Y. Downstate College of Medicine  
The Children's Hospital at Downstate, Brooklyn, NY

†Department of Pediatrics  
Albert Einstein College of Medicine  
The Children's Hospital at Montefiore, Bronx, NY

**Abstract - Background:** Knowledge of the timing and process of residents' career decision-making could improve mentoring, career counseling and subspecialty recruitment efforts. However, knowledge about the timing of career decisions made by pediatric residents is lacking.

**Objective:** To examine the timing of career decision-making among pediatric residents.

**Methods:** We conducted a cross-sectional survey of a convenience sample of pediatric residents using a modified National Survey of Attitudes and Choices in Medical Education and Training questionnaire. Participants were asked about career plans, the timing of career decisions, and significant influences on these decisions.

**Results:** Participants included 355 pediatric residents. Seventy-three percent had made a career decision. Of residents at least in the third post-graduate year, 40% of pediatric residents made career decisions during the second year of residency, and a cumulative 76% had made their decisions by the end of that year.

**Conclusions:** This information about the timing of career decisions made by pediatric residents could help time educational opportunities, mentoring and career counseling activities, and recruitment efforts.

### Introduction

Every one of the more than 8,000 pediatric residents in the United States must make a decision about his or her post-residency career plans. As with other specialties, there are many career options in pediatrics. Deciding on any one option can be both difficult and stressful. These individual choices influence the future of the national workforce. There are a number of institutional interventions that can inform residents and help them make career decisions. For example, different programs offer information sessions, subspecialty elective rotations, research opportunities, conference attendance, and various other counseling and mentoring activities.

Factors that motivate career choices have been well studied. The choice to practice primary care, for example, has been correlated with female gender,<sup>1-6</sup> encouragement of faculty and peers,<sup>5,7</sup> being a graduate of a medical school in the United States,<sup>3,4</sup> having a primary care mentor or role model,<sup>5,7,8</sup> and "socioemotional orientation."<sup>5,7</sup> Some of the most influential factors reported for residents' career choices are intellectual stimulation,<sup>6,9</sup> spouse/family

considerations,<sup>3,8</sup> job security,<sup>3</sup> geographic location,<sup>3,7</sup> and experiences during residency.<sup>7</sup>

The timing of career decisions for medical students has been acknowledged as an important medical education policy issue and examined in several studies. Investigations of medical students suggest that 40-50% make postgraduate career choices by the end of the second year of medical school, which has traditionally been before the clinical rotations begin.<sup>10-12</sup> In one study, about 20% of medical students had decided on a specialty at medical school orientation, 45% by the end of second year, 60% by the end of third year, and about 90% by the middle of the final year.<sup>10</sup>

However, existing research has not addressed the question of when post-residency career decisions are made by residents. A greater understanding of the timing of career decisions could be helpful for pediatric residency program directors and other faculty members who mentor residents. Additionally, such information could help employment and subspecialty fellowship recruitment efforts. Therefore, the objective of this study was to

examine the timing of career decision-making among pediatric residents.

## Methods

We conducted a cross-sectional survey of a convenience sample of pediatric residents between November 2002 and August 2003. Participants included pediatric residents, pediatric chief residents, and pediatric subspecialty residents (fellows), drawn from 20 departments of pediatrics across the country. Thirteen programs were in the Northeastern United States, 3 from the Midwest, 2 from the South and 2 from the West. Half of the programs were affiliated with a children's hospital.

To develop a survey instrument, we modified and adapted the 1997 version of the National Survey of Attitudes and Choices in Medical Education and Training (ACMET) questionnaire.<sup>13</sup> The modified questionnaire was piloted for clarity among a group of residents. A final 33-item, self-completion questionnaire was refined and distributed to all participants at our institution, and by mail or email to one contact at each of the other programs. Reminders were sent via email to contacts when necessary.

Participants were surveyed about their career plans, the timing of career decisions, changes in career plans during residency, the certainty of their decision (on a scale from 1-10, with 10 being "completely certain"), and important factors that influenced their decision (on a scale from 1-10, with 10 being "very important"). Demographic questions included year of training, gender, ethnicity, age, and whether medical school was completed in the United States or abroad.

For the analysis of the timing of career decisions, we focused on residents who had made a career decision and were at least at the PGY3 level. We chose this subset so that participants would have had sufficient time to change their minds, in case they were going to do so, and could report about the most recent decision. We dichotomized this subset of residents into "early deciders" and "late deciders," based on the timing of their decision. We examined the distribution of timing of career decision-making and determined the median. "Early deciders" were defined as residents who made a career decision before the median time for the population. Those residents who decided after this point in time were categorized as "late deciders." We then compared "early deciders" and "late deciders" for differences in career tracks (general versus subspecialty pediatrics.) We used descriptive statistics to characterize

respondents' demographic information, career choices, timing of career decisions and influential factors in decision-making. We used chi-square analyses to compare differences in proportions of categorical variables and Student's *t*-tests to compare mean differences in continuous variables.

## Results

Three hundred and fifty-five pediatric residents participated. Of all participants, 87% were graduates of medical schools in the United States. Moreover, 30% of respondents were in PGY1, 26% in PGY2, 33% in PGY3, 6% were pediatric chief residents and 5% were pediatric subspecialty residents (Table 1). The average age was 28.7 years. At our institution the response rate was 76%. We do not have data about the response rates from other institutions.

**Table 1. Demographic Characteristics (N=355)**

	% (N)	National Data <sup>14</sup>	
		2002	2003
	%	%	%
<b>Gender</b>			
<b>Women</b>	69 (245)	67	68
<b>International Medical Graduates</b>	13 (45)	22	24
<b>Training Level</b>			
<b>PGY1</b>	30 (105)		
<b>PGY2</b>	26 (93)		
<b>PGY3</b>	33 (118)		
<b>PGY4/5</b>	11 (39)		
<b>Ethnicity</b>			
<b>Caucasian</b>	69 (242)		
<b>Asian</b>	14 (50)		
<b>Hispanic</b>	6 (22)		
<b>African-American</b>	3 (11)		
<b>Native American</b>	1 (3)		
<b>Other</b>	8 (24)		
<b>No Response</b>	2 (6)		

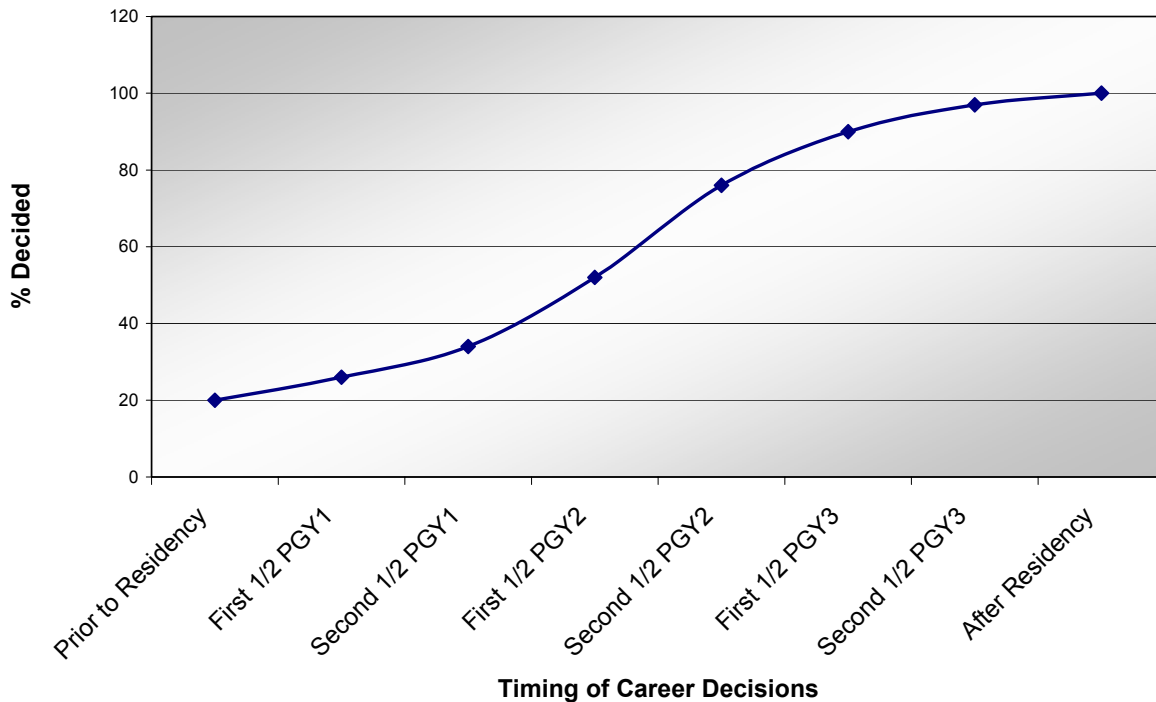
Overall, 73% of all respondents had made a decision about their future careers. Upper-level residents were more likely to have made career decisions; 50% of residents in the PGY1 had made a career decision, compared to 71% in the PGY2 and 95% in the PGY3 ( $p<0.001$ ). Additionally, upper-level residents were more certain about their decisions. The mean score for certainty of career decisions was 7.6 (out of 10) for those in the PGY1, compared to 8.2 in the PGY2, and 8.9 in the PGY3 ( $p<0.001$ ).

For the analysis of the timing of career decisions, we focused on residents who had made a career decision and were at the PGY3 level or above. Of these 157 residents, a cumulative 20% reported

making their decision before residency, 35% by the end of PGY1, 76% by the end of PGY2, and 97% by the end of PGY3. The remaining 3% reported making their career decisions either during the chief residency year, or after the completion of training (Figure 1).

were at least at the PGY3 level. Of that subset, approximately half had made a career decision by the middle of the PGY2 and were categorized as “early deciders.” We found no significant association between the timing of decision-making and the choice to subspecialize or practice general pediatrics.

**Figure 1. Curve of Cumulative Decisions for Residents >= PGY3**



Of the 258 residents (73%) who had made a career decision, 63% planned to subspecialize after residency. Table 2 shows comparisons between resident characteristics and career choices. Men chose to subspecialize more often than women. When compared to US medical graduates (USMGs), international medical graduates (IMGs) were also more likely to choose a subspecialty career.

Sixty-eight percent of residents reported having an important role model or mentor. Residents with a subspecialist mentor, or with both subspecialist and generalist mentors, were more likely to subspecialize than those with only a generalist mentor. Residents with a generalist mentor were more likely than others to choose a career in general pediatrics (Table 2).

We compared residents’ career choices based on when they had made their career decision. The analysis of early versus late deciders included only the 157 residents who had made a career decision and

That is, “early deciders” and “late deciders” were equally likely to subspecialize, and approximately half of the subspecialist and generalist cohorts were comprised of “early deciders.”

For residents overall, the most significant influences on career decisions were future lifestyle, interest in the field of choice, and job security, whereas the least important influence was personal debt (Table 3). As shown in Table 3, residents planning careers in general pediatrics were more likely to have been influenced by lifestyle considerations, family members, and generalist faculty. On the other hand, residents planning to subspecialize were more likely to be influenced by their interest in the field of choice, experiences during residency, and subspecialist faculty. Additionally, women rated the importance of future lifestyle higher compared to men (9.0 vs. 8.4, p=0.001).

**Table 2. Characteristics of residents who had made a career choice (N=258)**

	<b>Total</b>	<b>Residents Choosing to Subspecialize</b>	<b>Residents Choosing General Pediatrics</b>	<b>p value</b>
	<b>N</b>	<b>% (N)</b>	<b>% (N)</b>	
<b>Women</b>	<b>172</b>	<b>59 (101)</b>	<b>41 (71)</b>	<b>p=0.037</b>
<b>Men</b>	<b>80</b>	<b>73 (58)</b>	<b>28 (22)</b>	
<b>USMG</b>	<b>220</b>	<b>59 (130)</b>	<b>41 (90)</b>	<b>p=0.002</b>
<b>IMG</b>	<b>32</b>	<b>91 (29)</b>	<b>9 (3)</b>	
<b>Subspecialist Mentor</b>	<b>77</b>	<b>87 (67)</b>	<b>13 (10)</b>	<b>p&lt;0.001</b>
<b>Generalist Mentor</b>	<b>100</b>	<b>44 (44)</b>	<b>56 (56)</b>	
<b>Both Subspecialist &amp; Generalist Mentors</b>	<b>23</b>	<b>70 (16)</b>	<b>30 (7)</b>	

*Note:* Category totals do not add up to the sample total because of missing data. (One respondent did not specify a gender, 2 did not specify IMG or USMG status, and 5 reported making a career choice but then did not specify if it was general pediatrics or a subspecialty.)

**Table 3. Influences on career decisions: overall sample, residents choosing to subspecialize vs. general pediatrics**

<b>Factor</b>	<b>All Participants N=355</b>	<b>Subspecialists N=160</b>	<b>Generalists N=93</b>	<b>p value</b>
<b>Lifestyle</b>	<b>8.9 (1.4)</b>	<b>8.7 (1.5)</b>	<b>9.2 (1.4)</b>	<b>0.007</b>
<b>Interest in the Field of Choice</b>	<b>8.6 (1.6)</b>	<b>9.1 (1.1)</b>	<b>8.2 (1.6)</b>	<b>&lt;0.001</b>
<b>Job Security</b>	<b>8.4 (2.0)</b>	<b>8.3 (2.1)</b>	<b>8.6 (1.7)</b>	<b>NS</b>
<b>Experiences During Residency</b>	<b>6.9 (2.8)</b>	<b>7.2 (2.6)</b>	<b>6.5 (2.8)</b>	<b>0.038</b>
<b>Future Income</b>	<b>6.8 (2.0)</b>	<b>6.9 (2.1)</b>	<b>6.8 (2.0)</b>	<b>NS</b>
<b>Subspecialist Faculty</b>	<b>6.4 (2.5)</b>	<b>7.1 (2.4)</b>	<b>5.5 (2.3)</b>	<b>&lt;0.001</b>
<b>Role Models/Mentors</b>	<b>6.3 (2.9)</b>	<b>6.4 (3.0)</b>	<b>6.5 (2.6)</b>	<b>NS</b>
<b>Generalist Faculty</b>	<b>5.9 (2.6)</b>	<b>5.6 (2.7)</b>	<b>6.5 (2.3)</b>	<b>0.009</b>
<b>Family Members</b>	<b>4.6 (3.0)</b>	<b>3.8 (2.7)</b>	<b>5.4 (2.9)</b>	<b>&lt;0.001</b>
<b>Resident Colleagues</b>	<b>4.3 (2.5)</b>	<b>4.0 (2.4)</b>	<b>4.4 (2.6)</b>	<b>NS</b>
<b>Personal Debt</b>	<b>3.7 (2.9)</b>	<b>3.6 (2.9)</b>	<b>4.0 (2.9)</b>	<b>NS</b>

Scale 1-10, 1 = not at all important, 10 = very important

Data are presented as mean (standard deviation)

NS = not significant

*Note:* Totals of subspecialist and generalist categories do not add up to the sub-sample total because of missing data. (258 respondents reported making a career choice, but 5 did not specify if it was general pediatrics or a subspecialty.)

## Discussion

This study is the first to our knowledge to examine the timing of career decision-making by pediatric residents. We found the steepest part of the curve of cumulative decisions made versus time is in the PGY2, during which year 40% of residents made their career decisions. We hypothesized that career choices may be impacted by fellowship application deadlines, which are in the PGY2 or PGY3 depending on the subspecialty. However, that is not likely the case, since “late deciders” were just as likely as “early deciders” to choose a career in a pediatric subspecialty.

The unique contribution of this study is the examination of the timing of career decisions. We considered the impact of demographic and personal influences factors largely to benchmark our sample against larger-scale samples used in existing research on factors influencing career decisions. Several studies have shown that women in medicine are more likely to choose general rather than subspecialty careers.<sup>1-6</sup> Consistent with these trends, the women in our study were more likely than their male counterparts to choose careers in general pediatrics. The women in our study also rated the importance of lifestyle on their career decisions higher when compared to men, as has been reported elsewhere.<sup>6,8</sup> The fact that lifestyle considerations were ranked so highly by nearly all residents is consistent with the findings of Harris et al., who studied 12 years of graduates from the Children’s Hospital of Philadelphia and found that over this time period lifestyle considerations have become more influential in pediatric residents’ career choices.<sup>6</sup>

Having a primary care mentor or role model has been shown to correlate with the choice to practice primary care.<sup>5,7,8</sup> Consistent with these findings, the residents in our study with mentors in general pediatrics were more likely to enter general pediatrics, while residents with mentors practicing a subspecialty were more likely to pursue subspecialty training. Residents with both generalist and subspecialty mentors seemed to have been more influenced by the subspecialty mentors, as they were more likely to choose to subspecialize. In this study, it was not possible to determine if these mentorship relationships were a cause or effect of the residents’ career interests. Future studies about the influence of mentors and role models could clarify this question.

We acknowledge various limitations to this study. The residents in our study may not be representative of all pediatric residents, as our sample

was obtained from institutions where resident and administrative contacts were most cooperative. However, according to the American Board of Pediatrics, our sample was similar to the national sample in terms of gender and IMG status for the years analyzed (Table 1). Participants differed from the national cohort of pediatric residents in that they were more likely to be affiliated with a children’s hospital and more likely to pursue subspecialty careers. In our sample two-thirds of residents chose subspecialty careers, whereas national data demonstrates that for the past 5 years, approximately two-thirds of pediatric residents have chosen careers in general pediatrics.<sup>14</sup> Given the composition of our sample, we expect these findings to be most useful to residency programs that are academic in nature and have a high proportion of graduates who pursue subspecialty training. Another limitation is that career decisions may be dynamic, and our survey assessed residents only at one point in time. We tried to correct for this by considering residents at least at the PGY3 level for the analysis of the timing of career decisions. Subsequent studies might focus on graduating residents or recent graduates. Experiences during residency were rated as an importance influence on residents’ decisions, but in future studies it will be important to determine more specifically which experiences those are, such as certain rotations, elective rotations, research opportunities, conferences or information sessions. With this information, these educational experiences could be timed for maximum benefit and could be offered to residents trying to make a decision.

To ensure appropriate care for children in the future, a great deal of effort is dedicated to predicting and influencing the pediatric workforce.<sup>3,4,7</sup> A greater understanding of the timing and process of career decision-making by pediatric residents could potentially facilitate this process. In summary, we found that 40% of residents had made their career decision in the PGY2, and a cumulative three-quarters by the end of the PGY2. These findings could help time education opportunities offered to residents, employment and subspecialty fellowship recruitment efforts, and suggest that mentoring and career counseling should begin early in residency.

## References

1. Brotherton SE, Mulvey HJ, O’Connor KG. Women in pediatric practice: trends and implications. *Pediatr Ann.* 1999;28:177-83.
2. Brotherton SE. The relationship of indebtedness, race, and gender to the choice of general or

- subspecialty pediatrics. Acad Med. 1995;70:149-51.
3. Pan RJ, Cull WL, Brotherton SE. Pediatric residents' career intentions: data from the leading edge of the pediatric workforce. *Pediatrics*. 2002;109:182-8.
  4. Tunnessen WW Jr, Guerin RO, Stockman JA III. Pediatric workforce: data from the American Board of Pediatrics. *J Pediatr*. 2001;139:311-6.
  5. Connelly MT, Sullivan AM, Peters AS, Zotov N, Martin N, Simon SR, et. al. Variation in predictors of primary care career choice by year and stage of training. *J Gen Intern Med*. 2003;18:159-69.
  6. Harris MC, Marx J, Gallagher PR, Ludwig S. General vs. subspecialty pediatrics. Factors leading to residents' career decisions over a 12-Year period. *Arch Pediatr Adolesc Med*. 2005;159:212-6.
  7. Pan RJ, Clark-Chiarelli N, Peters AS, Block SD. Intention to practice primary care by pediatric residents: nature or nurture? *Clin Pediatr*. 1999;38:473-9.
  8. Xu G, Rattner SL, Veloski JJ, Hojat M, Fields SK, Barzansky B. A national study of the factors influencing men and women physicians' choices of primary care specialties. *Acad Med*. 1995;70:398-404.
  9. Adler R, Korsch BM, Negrete VF. Timing and motivation in pediatric career choices. *J Med Educ*. 1985;60:174-80.
  10. Zeldow PB, Preston RC, Daugherty SR. The decision to enter medical specialty: timing and stability. *Med Educ*. 1992;26:327-32.
  11. Donovan JC, Salzman LF, Allen PZ. Studies in medical education: career choice consistency of medical students. *Am J Obstet Gynecol*. 1972;112:519-24.
  12. Czinkota MR, Johnston WJ. Choosing a career and specialty: when do students decide?. *Health Care Manag Rev*. 1983;8:43-51.
  13. Simon SR, Pan RJ, Sullivan AM, Clark-Chiarelli N, Connelly MT, Peters AS, et. al. Views of managed care – a survey of students, residents, faculty and deans in the United States. *N Engl J Med*. 1999; 340:928-36.
  14. The American Board of Pediatrics [homepage on the Internet]. Chapel Hill: The American Board of Pediatrics; [cited 2005 Sep 21]. Workforce data: 2004 General Pediatrics Resident Tracking; [about 13 screens]. Available from: <http://www.abp.org/stats/WRKFRC/GP%20Tracking.ppt>

#### Correspondence

Correspondence concerning this article should be directed to Laura Dattner, MD, Children's Hospital at Downstate, 450 Clarkson Avenue, Box 49, Brooklyn, NY 11203 or via email to [Laura.Dattner@downstate.edu](mailto:Laura.Dattner@downstate.edu).