Longitudinal Assessment of the Timing of Career Choice Among Pediatric Residents

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Objective: To determine the timing of and key factors in resident decision making to pursue either a career in general pediatrics or subspecialty training.

Design: We used a 10-item fixed-choice questionnaire that focused on exploring how and when pediatric residents make career choices.

Setting: The survey was administered to all categorical pediatric residents in the United States and Canada as part of the General Pediatrics In-Training Examination in 2007 and 2009. The 2007 level 1 residents and 2009 level 3 residents were matched by a unique person identifier to create a longitudinal data set.

Participants: A total of 2305 individuals completed the survey as level 1 residents in 2007 and level 3 residents in 2009, representing a retention rate of 83.5%.

Main Outcome Measures: Change in individual and aggregate pediatric resident response over time.

Results: A similar number of individuals planned to pursue fellowship training in 2007 and 2009 (1026 vs 1062). Among this group, 745 (72.6%) of the 2009 residents were the same individuals who had indicated that they planned to pursue fellowship training in 2007. A total of 258 (71.9%) of all residents who reported in 2007 that they intended to pursue careers in general pediatrics with little or no inpatient care were still planning to do so in 2009.

Conclusions: Most pediatricians make their decisions regarding pursuit of a career in primary care or to complete a fellowship before they ever enter residency training. It is unknown whether a similar timeline of decision making is consistent across specialties.

Arch Pediatr Adolesc Med. 2010;164(10):961-964

The point in time when medical students or residents decide to pursue either a generalist career or subspecialty training is unknown. Furthermore, the timing of the decision to enter fellowship training is not necessarily concurrent with the decision to pursue a specific subspecialty. Whereas most fellowship programs require that residents apply in either their second or third year of training, the timing of the decision itself has significant implications for the volume and specificity of program applications and, ultimately, fellowship enrollment.

The timing and decision-making process of those pursuing a medical career is also of interest to policymakers, particularly to those making workforce projections. At various times, the balance of the production of generalists and specialists is perceived to be skewed in one direction or the other. Data on when the decision to pursue fellowship training takes place and the most important factors in career choice may allow opportunities for intervention in this process.

We have previously reported cross-sectional analyses of the decision process of residents at different stages of training. Now, as a continuing part of the dedicated data collection effort by the American Board of Pediatrics to better understand career decision making among residents, we are able to analyze longitudinal information from an entire annual cohort of residents as they progressed through their training. This study represents a further step in understanding the timing of and key factors in resident decision making to pursue either a career in general pediatrics or subspecialty training.

METHODS

SAMPLE AND SURVEY INSTRUMENT

We included categorical pediatric resident physicians in all training programs in the United States and Canada. In collaboration with the
American Board of Pediatrics Research Advisory Committee, the research team developed a structured questionnaire with 10 fixed-choice, single-response items designed to be completed in 5 minutes or less. The survey focused on exploring how and when pediatric residents make career choices.

Each year in July, the American Board of Pediatrics administers the General Pediatrics In-Training Examination to all current pediatric residents in the United States and Canada as a required component of residency training. Our survey was administered to 2884 level 1 categorical pediatric residents in 2007 and 2720 level 3 categorical pediatric residents in 2009 as an optional addendum to the General Pediatrics In-Training Examination.

**DATA ANALYSIS**

The 2007 level 1 residents and 2009 level 3 residents were matched with a unique person identifier to create a longitudinal data set. Comparisons were made between 2007 level 1 residents and 2009 level 3 residents to examine how resident responses changed across time. Next, we compared the responses according to demographic characteristics: male and female respondents, US and Canadian medical school graduates vs international medical school graduates, and respondents from large (>60 residents) vs medium (31-60 residents) vs small (≤30 residents) residency programs. We used \( \chi^2 \) statistics to determine the level of association between the outcome variables of training and career decisions and the predictor variables.

**RESULTS**

**RESPONSE RATE**

A total of 2761 of the 2884 level 1 residents completed the survey in 2007, representing a response rate of 95.7%. Of this group, we collected data from 2305 individuals in 2009, representing a retention rate of 83.5%. This represents 84.7% of all third-year pediatric residents. A portion of these residents refused to participate, and another portion were on leave of absence or were part of combined training programs that do not have 3 years of pediatric training.

**RESPONDENT DEMOGRAPHICS**

Most respondents were women (1710 [74.2%]) and graduates of US or Canadian medical schools (1770 [76.8%]). Of the respondents, 324 (14.1%) were from small residency programs, defined as having 30 or fewer residents, and 1052 (45.6%) were from large programs, defined as having 61 or more residents.

**POSTRESIDENCY PLANS AND CAREER CHOICE**

Approximately the same overall number of individuals planned to pursue fellowship training as interns in 2007 and 2 years later as senior residents (1026 vs 1062) (Table 1). Of these residents, 745 (72.6%) were the same individuals who had indicated that they planned to pursue fellowship training in 2007.

A total of 258 (71.9%) of all residents who reported at the start of their residency training in 2007 that they intended to pursue careers in general pediatrics with little or no inpatient care were still intending to do so in 2009. Of the 708 interns (30.8%) who were unsure about their career plans, approximately one-third decided to pursue general pediatrics with little or no inpatient care, and one-third decided to pursue fellowship training. Most of the remainder indicated that they intend to pursue a career involving general pediatric outpatient care with substantial inpatient care (104 [14.7%]) or were still unsure (108 [15.3%]).

Of those planning as interns to pursue careers in hospitalist care only, 19 (48.7%) still intended to do so in 2009. Overall, the number of residents planning careers in hospital medicine increased from 39 in 2007 to 115 in 2009. The increase was primarily from residents who initially were unsure of their career choice (n = 39) or were intending to pursue fellowship training (n = 42).

A similar proportion of both men and women maintained their decision to pursue careers in primary care in 2007 and 2009 (40 [71.4%] vs 218 [71.9%]; \( P = .94 \)). However, a greater proportion of men than women who intended to pursue fellowship training in 2007 were still planning to do so in 2009 (279 [79.7%] vs 466 [68.9%]; \( P < .001 \)).

More women than men (576 [33.7%] vs 132 [22.3%]) reported being unsure of their postresidency plans at the start of their internship in 2007. Of these, by 2009 almost all (84.9% of men and 84.7% women) these individuals had chosen an initial career path. A greater proportion of women compared with men now were planning

**Table 1. Postresidency Plans Among 2300 Pediatric Residents: 2007 vs 2009**

<table>
<thead>
<tr>
<th>Plans in 2007</th>
<th>General Pediatrics With Little or No Inpatient Care</th>
<th>General Pediatrics Outpatient Care With Substantial Inpatient Care</th>
<th>Hospitalist Care Only</th>
<th>Fellowship Training</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>General pediatrics with little or no inpatient care (n=359)</td>
<td>258 (71.9)</td>
<td>39 (10.9)</td>
<td>6 (1.7)</td>
<td>43 (12.0)</td>
<td>13 (3.6)</td>
</tr>
<tr>
<td>General pediatrics outpatient care with substantial inpatient care (n=168)</td>
<td>56 (33.3)</td>
<td>65 (38.7)</td>
<td>9 (5.4)</td>
<td>35 (20.8)</td>
<td>3 (1.8)</td>
</tr>
<tr>
<td>Hospitalist care only (n=39)</td>
<td>1 (2.6)</td>
<td>5 (12.8)</td>
<td>19 (48.7)</td>
<td>10 (25.6)</td>
<td>4 (10.3)</td>
</tr>
<tr>
<td>Fellowship training (n=1026)</td>
<td>96 (9.4)</td>
<td>67 (6.5)</td>
<td>42 (4.1)</td>
<td>745 (72.6)</td>
<td>76 (7.4)</td>
</tr>
<tr>
<td>Unsure (n=708)</td>
<td>228 (32.2)</td>
<td>104 (14.7)</td>
<td>39 (5.5)</td>
<td>229 (32.3)</td>
<td>108 (15.3)</td>
</tr>
</tbody>
</table>

\( ^a \) n=2300 owing to missing responses. Percentages may not total 100 due to rounding.
a career in primary care with little or no inpatient care (197 [34.2%] vs 31 [23.5%]; \( P = .02 \)), whereas a greater proportion of previously undecided men, relative to women, were planning to pursue fellowship training (54 [40.9%] vs 175 [30.4%]; \( P = .02 \)).

When examining consistency of career intentions by program size, a greater proportion of residents in large programs in 2009 than those in medium-sized or small programs maintained their initial 2007 intentions to practice primary care with little or no inpatient care (75.0% vs 68.1%; \( P = .56 \)) and to pursue fellowship training (77.2% vs 69.7% vs 64.8%; \( P = .004 \)). With regard to program size, of those interns in 2007 who were unsure about their postresidency plans, no differences were seen in their 2009 stated intentions.

### INFLUENCES ON POSTRESIDENCY CAREER CHOICE

Interns in 2007 most commonly selected structured hours/lifestyle and interest in a specific disease/patient population as the most important factors in choosing their postresidency career. In 2009, approximately two-thirds of these residents selected the same item again as their most important factor (Table 2). This finding was consistent across sex, international medical school graduate/US and Canadian medical school graduate status, and program size. A greater proportion of residents in large programs relative to small programs selected the same factor as most important in 2007 and 2009. Women were more likely than men to indicate that structured hours/lifestyle continued to be the most important factor in their postresidency career (354 [65.9%] vs 73 [54.5%]; \( P = .02 \)).

### Table 2. Most Important Factor in Postresidency Career

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pediatric Residents Maintaining Same Choice From 2007 to 2009, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Structured Hours/Lifestyle (n=671)</td>
</tr>
<tr>
<td>Overall</td>
<td>63.6</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>54.5</td>
</tr>
<tr>
<td>Female</td>
<td>65.9</td>
</tr>
<tr>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>AMG</td>
<td>63.5</td>
</tr>
<tr>
<td>IMG</td>
<td>64.2</td>
</tr>
<tr>
<td>Program size</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>59.2</td>
</tr>
<tr>
<td>Medium</td>
<td>62.6</td>
</tr>
<tr>
<td>Large</td>
<td>66.8</td>
</tr>
</tbody>
</table>

Abbreviations: AMG, US and Canadian medical school graduates; IMG, international medical school graduates.

\( ^{a} \)Sample sizes indicate number of residents who chose this factor in 2007.

The most important finding from our study is that there was great consistency in postresidency plans for residents from the beginning of internship to the third year of training. Approximately three-fourths of individuals who entered their residency planning a career in general pediatrics or to pursue fellowship training were still intending to follow the same path toward the end of their residency. This finding demonstrates that for most residents, the decision to pursue a specific career path is determined before they enter their postgraduate training, likely at some point in medical school. Our data suggest that pediatric residency programs that seek to produce a targeted ratio of generalists to subspecialists should place a greater emphasis on assessing career goals of candidates during the resident interview process.

Contrary to generally accepted dogma,\(^2\) our results indicate that most residents do not decide during residency whether to pursue subspecialty training. One recent retrospective study\(^3\) found that more than one-third of subspecialists made the decision to pursue subspecialty training before starting residency. However, it is likely that among some who plan to pursue fellowship training, the decision of which specific subspecialty to pursue is made at some point during residency. This suggests a significant role for residency training in helping to shape the complexion of the subspecialty workforce. Additional studies are needed to further delineate the timing and nature of these decisions.

Our data also indicate that of the approximately one-third of residents who enter training unsure of their postresidency plans, roughly equal numbers of these will pursue general pediatrics with little or no inpatient care or fellowship training. This finding was consistent across residency program size. The degree to which these training programs meet the needs of this group of residents and those with clearer initial career intentions is unknown.

It appears that attempts to influence the proportion of residents who decide to pursue primary care or fellowship training will have limited effect if such efforts are initiated after matriculation into residency training. Some residents do change their minds regarding career pathway, but most maintain their initial trajectory. Minor adjustments to residency training experiences are likely to have little influence on the generalist to subspecialist ratio.
Although the time spent in specific rotations in medical school influence specialty decisions,10 to our knowledge, it has not been shown previously that the decision to pursue fellowships is so definitively determined at that stage of training. This raises significant questions regarding the experiences of medical students relative to the intended and unintended consequences of structured exposures during clerkships to mentors and specific clinical settings. Clerkships with a more robust primary care or subspecialty focus may have a heretofore unrecognized influence on future career choice.

We also found strong consistency across time in the factor each resident rated as most important in choosing a postresidency career. This suggests that for most residents, the motivating factors that drive career choice are already established at the beginning of residency and are not altered by the residency training process itself.

Significant recent attention has focused on the proportion of medical students pursuing careers in one of the primary care specialties of pediatrics, internal medicine, and family medicine. In contrast to internal medicine, our results confirm that a large proportion of pediatric residents maintain their interest and intentions throughout their training to pursue primary care as a career. In 2006, West et al6 found that 62% of internal medicine residents changed their career plans during their residency. These results provide further evidence that not all primary care physicians and trainees are the same. Policymakers should be aware of the potential for inaccuracy when medical specialties are aggregated for workforce planning.7,8

Notably, there was an increase in our cohort of those intending to practice hospitalist care, from only 1.7% at the beginning of training in 2007 to 5.0% of level 3 residents in 2009. Although only half of those reporting such intentions as interns were still planning to pursue this path 2 years later, a greater number of the originally unsure residents moved in this direction by 2009. This is still a smaller proportion than seen in internal medicine, in which 8.6% of level 3 residents reported that they would pursue hospitalist care.8 It is unclear at what point this trend will stabilize.

We found that sex differences in postresidency career plans widened from the first to the third year of training, with increasingly larger proportions of men choosing to pursue fellowship training and increasing numbers of women choosing to pursue primary care. Similarly, a greater proportion of women than men noted structured hours/lifestyle to be the most important factor in choosing a postresidency career. These findings are consistent with previous reports3,9 and have implications for the future of pediatrics as women constitute a greater proportion of the overall pediatric workforce.

In conclusion, the choice of medical students to enter a primary care specialty is not necessarily synonymous with the decision to enter primary care. Our study highlights the complexity required of potential interventions to influence the balance of generalists and subspecialists in a given specialty. It is unknown whether a similar timeline of decision making is consistent across specialties. Certainly, we are now aware that most pediatricians make their decisions regarding pursuit of a career in primary care or to complete a fellowship before they ever enter residency training. What, if anything, that implies for the future generalist-subspecialist balance is left to be determined.

Accepted for Publication: March 24, 2010.
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Author Contributions: Dr Freed had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Freed, Jones, McGuinness, Althouse, and the Research Advisory Committee. Acquisition of data: Freed and Althouse. Analysis and interpretation of data: Freed, Dunham, and Jones. Drafting of the manuscript: Freed and Dunham. Critical revision of the manuscript: Freed, Dunham, Jones, McGuinness, and Althouse. Statistical analysis: Dunham and Althouse. Obtained funding: Freed. Administrative, technical, or material support: Dunham and Althouse. Study supervision: Freed and Althouse.

Financial Disclosure: None reported.

Funding/Support: This work was funded by a grant from the American Board of Pediatrics Foundation.

Role of the Sponsor: The sponsor had no role in the conduct of the study; the collection, management, analysis, or interpretation of the data; or the preparation, review, or approval of the manuscript.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the funding agency.

REFERENCES