General vs Subspecialty Pediatrics

Factors Leading to Residents’ Career Decisions Over a 12-Year Period

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Objectives: To determine factors motivating residents’ career choices and to examine changes in these priorities over the last 12 years. During the last decade, surveys of pediatric training programs have shown trends toward residents choosing careers in general pediatrics rather than in subspecialties. Most recently, there is evidence of a shift back toward subspecialty careers.


Results: The sample comprised 238 residents (mean±SD age, 30±3 years; 59% female, 41% male; 47% subspecialists, 53% generalists). Among the group as a whole, subject matter, role models, lifestyle issues, and teaching were the most important determinants for career choices. Less important were national trends, job openings, and research. When subspecialists and generalists were compared, both groups found subject matter to be their highest priority. Among residents interested in subspecialties, teaching, research, and technical skills were significant (P<.001), compared with generalists, who considered lifestyle and personal/financial issues more important (P<.001). Lifestyle issues were also more important to female residents, those 30 years of age or younger, and those completing training recently (P<.05).

Conclusions: Career decisions for pediatric residents today are motivated by complex factors. For those choosing generalist careers, lifestyle and personal/financial considerations predominate, while teaching, research, and technical skills are key factors for subspecialists. Over the last decade, lifestyle issues have become a more dominant factor, particularly for women entering the pediatric workforce.

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We surveyed past and present pediatric residents who trained at The Children’s Hospital of Philadelphia with completion dates from 1991 to 2002 via an anonymous written questionnaire developed by 2 of us (S.L., M.C.H.). This questionnaire requested demographic information, including pediatric level (residents in their third year or beyond), age, sex, marital status, timing of career choice to enter pediatrics, and medical school debt. Participants were asked their career choices and factors influencing their job selection. For the purposes of this study, generalists were defined as community-based primary care physicians or medical center–based general pediatrics. Subspecialists included those pursuing advanced fellowship training in subspecialties. Participants were asked to evaluate the importance of several factors for making their career choice. Scores ranged from 1 to 10, where 1 indicates “plays no role in my choice,” 5 indicates “consideration in my thinking,” and 10 indicates “critical factor in my decision.” Factors assessed included subject matter, personal/financial considerations, positive influence of role models, possible openings in the job market, national trends, enjoyment of technical skills, lifestyle issues, desire to do research, and desire to teach. Responses were coded anonymously and scored by a single investigator (J.M.).

The study was undertaken over an 8-year period from 1995 to 2002. Participants were surveyed during their third year of residency or beyond if training completion dates preceded the start of the study. Residents were surveyed only once, and a repeat questionnaire was sent to individuals who did not respond to the first mailing. At the start of the study, institutional review board approval was not needed and was subsequently waived for the duration of the study.

### METHODS

#### STUDY DESIGN

We surveyed past and present pediatric residents who trained at The Children’s Hospital of Philadelphia with completion dates from 1991 to 2002 via an anonymous written questionnaire developed by 2 of us (S.L., M.C.H.). This questionnaire requested demographic information, including pediatric level (residents in their third year or beyond), age, sex, marital status, timing of career choice to enter pediatrics, and medical school debt. Participants were asked their career choices and factors influencing their job selection. For the purposes of this study, generalists were defined as community-based primary care physicians or medical center–based general pediatrics. Subspecialists included those pursuing advanced fellowship training in subspecialties. Participants were asked to evaluate the importance of several factors for making their career choice. Scores ranged from 1 to 10, where 1 indicates “plays no role in my choice,” 5 indicates “consideration in my thinking,” and 10 indicates “critical factor in my decision.” Factors assessed included subject matter, personal/financial considerations, positive influence of role models, possible openings in the job market, national trends, enjoyment of technical skills, lifestyle issues, desire to do research, and desire to teach. Responses were coded anonymously and scored by a single investigator (J.M.).

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#### STATISTICAL ANALYSIS

Descriptive statistics were used to characterize the entire group of respondents on demographic information, career choices, and factors involved in job selection. Means and standard deviations were calculated for continuous data. Certain continuous variables (eg, age) were dichotomized (eg, age ≤30 years and age >30 years) and were reported in both formats (ie, as mean±standard deviation and as a proportion within a dichotomous category). Year of training completion was collapsed into 3 categories: 1991 to 1994, 1995 to 1998, and 1999 to 2002. For selected ordinal data (eg, factors involved in job selection, which were measured on a 10-point Likert scale), median values, ranges, and means and standard deviations were examined. Frequency counts were reported for categorical data (eg, sex, marital status, and career choice) and for selected ordered categorical data (eg, age, medical school debt, and year of completion of training); selected proportions are reported in Table 1. Overall median values and ranges are displayed in the Figure, while means and standard deviations for various demographic subcategories are displayed in Tables 2 and 3. A box plot was used to display the actual distribution of the data obtained from the questionnaire items (Figure). A box plot characterizes the actual distribution of a variable, displaying its median, quartiles, and extreme values. Subject matter was the only factor containing any outliers; this factor contained 2 outliers and 1 extreme value. Results of bivariate analyses were essentially equivalent whether these 3 cases were included or excluded, and no further special analytic procedures were used to deal with them.

Comparisons were made between various subject groupings (eg, generalist vs subspecialist career choice, age category, sex, and year-of-residency category) on importance of each of the items in the questionnaire using Mann-Whitney or Kruskal-Wallis rank-order tests. Associations between career choice (generalist vs subspecialist) and categorical values (sex, marital status, year-of-residency category, age category, and debt category) were examined using chi-squared tests. While the overall sample consisted of 238 residents, the number of cases involved in any particular analysis may be slightly less because of missing values for particular variables. A P value ≤.05 was considered sta-

### Table 1. Demographic Characteristics of Total Sample, Subspecialists, and Generalists*

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Sample (N = 238)†</th>
<th>Subspecialists (n = 104)</th>
<th>Generalists (n = 119)</th>
<th>P Value‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>41</td>
<td>53</td>
<td>30</td>
<td>.001</td>
</tr>
<tr>
<td>Female</td>
<td>59</td>
<td>47</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td>NS</td>
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<tr>
<td>≤30 y</td>
<td>58</td>
<td>53</td>
<td>62</td>
<td></td>
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<tr>
<td>&gt;30 y</td>
<td>42</td>
<td>47</td>
<td>38</td>
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<tr>
<td>Marital status</td>
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<td>NS</td>
</tr>
<tr>
<td>Single</td>
<td>63</td>
<td>58</td>
<td>68</td>
<td></td>
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<tr>
<td>Married</td>
<td>37</td>
<td>42</td>
<td>32</td>
<td></td>
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<tr>
<td>Debt</td>
<td></td>
<td></td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>&lt;$50,000</td>
<td>50</td>
<td>47</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>&gt;$50,000</td>
<td>50</td>
<td>53</td>
<td>48</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: NS, not significant.

*Data are presented as percentage unless otherwise indicated.

†Fifteen respondents did not clearly indicate choice of subspecialist vs generalist career.

‡P values refer to comparisons between subspecialist and generalist groups.
debt, and 20% had more than $100000 of debt. An additional 30% had between $50000 and $100000 of medical school debt. 50% had less than $50000 of medical school debt. A majority decided during or after medical school. In addition, 28% were interested in pediatrics during childhood or college, the majority decided during or after medical school. Although a few respondents decided on a career path, 53% were interested in generalist careers, while 47% intended to pursue or were pursuing subspecialists. Among them, the mean±SD age at the time of completion of the questionnaire was 30±3 years. The response rate was 68%. The sample comprised 238 residents for a 68% response rate. Table 1 shows the demographic characteristics of the total sample, subspecialists, and generalists. Among them, the mean±SD age at the time of completion of the questionnaire was 30±3 years. The respondents were 59% female and 41% male, which is similar to the sex distribution of the original sample (66% female, 34% male). Among the respondents indicating a career path, 53% were interested in generalist careers, while 47% intended to pursue or were pursuing subspecialist training. Although a few respondents decided on a career in pediatrics during childhood or college (28%), the majority decided during or after medical school. In addition, 50% had less than $50000 of medical school debt, an additional 30% had between $50000 and $100000 of debt, and 20% had more than $100000 of debt.

### RESULTS

Questionnaires were returned by 254 of 351 participants. Sixteen questionnaires were excluded from analysis as respondents failed to indicate the year of completion of their training. The final sample comprised 238 residents for a 68% response rate. Table 1 shows the demographic characteristics of the total sample, subspecialists, and generalists. Among them, the mean±SD age at the time of completion of the questionnaire was 30±3 years. The respondents were 59% female and 41% male, which is similar to the sex distribution of the original sample (66% female, 34% male). Among the respondents indicating a career path, 53% were interested in generalist careers, while 47% intended to pursue or were pursuing subspecialist training. Although a few respondents decided on a career in pediatrics during childhood or college (28%), the majority decided during or after medical school. In addition, 50% had less than $50000 of medical school debt, an additional 30% had between $50000 and $100000 of debt, and 20% had more than $100000 of debt.

### FACTORS AFFECTING RESIDENTS’ CAREER CHOICES

The Figure shows the median as well as the distribution of responses of the residents to the items in the questionnaire. Among the group as a whole, interest in subject matter was the most important determinant of career choice. In addition, positive influence of role models, lifestyle issues, and teaching were also important determinants for career choices. In contrast, national trends, perceived openings in the job market, desire to do research, technical skills, and personal/financial issues were less important.

Table 2 compares the responses to the questionnaire among the residents interested in subspecialty careers vs those interested in general pediatrics. While both groups found subject matter to be their highest priority, subspecialists assigned a higher score to this variable (P<.025). Among the residents interested in subspecialty careers, teaching, desire to do research, and technical skills were significantly more important when compared with the residents interested in general pediatrics (P<.001). Instead, the residents interested in general pediatrics considered lifestyle and personal/financial issues more important (P<.001).

### EFFECTS OF DEMOGRAPHIC VARIABLES

We also evaluated the effect of sex, marital status, age, and medical school debt on the choice between generalist and subspecialist careers. In our study, there was a statistically significant association between sex and career choice. Women were significantly more likely to choose generalist careers when compared with their male counterparts. Sixty-three percent of women were pursuing generalist careers, while the majority of men (60%) were interested in subspecialty positions (P<.001). While married residents were less likely to enter generalist careers (47%) when compared with single residents (57%), this association was not statistically significant. Moreover, there was no significant association between career choice and age of 30 years and younger or older or debt of less or more than $50000.

We also analyzed the responses to the questionnaire based on age and sex. When male and female residents were compared, lifestyle issues were significantly more important to female residents (mean±SD, 7.5+2.6) when compared with their male counterparts (mean±SD, 6.3+2.5; P<.001). This was the only significant difference between male and female respondents. Lifestyle issues were also more important to residents of 30 years of age or younger when compared with their counterparts older than 30 years (P<.05).

### EFFECTS OF TRAINING COMPLETION DATES

In our study, there was no significant association between training completion date and the choice of a generalist vs subspecialist career. We also analyzed the responses to the questionnaire based on year of completion of training. As shown in Table 3, when the 3 training completion intervals were compared, residents completing training recently found lifestyle issues more important than those training during the earliest period of study (P<.005). Job openings and national trends also showed differences among the groups, but the mean scores assigned to these variables indicated an overall low priority. Further, when data from 1991 to 1994 (retrospective) were excluded from analysis, the differences between personal/financial issues, job openings, and national trends were no longer significant. Lifestyle issues, however, remained a significantly higher priority to recent graduates of our program (P=.01).

Our study demonstrates that career decisions for pediatric residents today are motivated by a number of factors.
tors that differ from those of residents graduating from pediatric training programs 10 to 15 years ago. These include lifestyle and personal/financial issues, national trends, and perceived openings in the job market. In addition, these priorities are affected by the resident’s choice of a generalist vs subspecialist career, sex, and age.

One should not be surprised by the high priorities assigned by residents at a large academic medical center to interest in subject matter, positive influence of role models, and teaching. As members of an academic institution, we assume that these would be qualities highly valued by our graduates. The importance of faculty role models in residents’ career choices has been emphasized by other authors. In a study of students entering primary care careers, Osborn found that 89% credited attending physicians as influential in their career choices. Perhaps more striking, however, was the importance placed on lifestyle issues by our study participants. Although not further defined in our questionnaire, lifestyle issues were of significantly greater importance to recent and younger graduates of our program, as well as to women. In a recent survey of third-year residents from the American Academy of Pediatrics (1997-1999), spouse/family considerations, job security, and geographic location were the most important factors determining career choices, while patient population, teaching, and research were less important variables. A recent study also suggests the increasing preference of senior medical students for specialties with a controllable lifestyle. These data have significant implications for the future physician workforce, including pediatricians.

Over the last 10 years, women have constituted a growing proportion of the pediatric workforce. Data from the annual report of the American Board of Pediatrics demonstrate that the percentage of women entering pediatric residencies reached an all-time high of 65% in 2003. Among them, however, only 23% chose subspecialty careers. Several studies have suggested a definite preference among women for primary care specialties, including family medicine and general internal medicine, as well as pediatrics. Consistent with these trends, our study found women to be significantly more likely than men to become generalists (63% vs 40%). Moreover, women were significantly more likely than their male counterparts to rank lifestyle issues as more important to them. The reasons for these sex-related preferences are complex. Studies have suggested that women have age-related reproductive concerns and a greater desire for flexible hours and part-time opportunities, which can limit their postgraduate training. A recent study has documented a growing number of pediatricians working part-time, the majority of whom are women. This interest in part-time employment may help female pediatricians to balance work and family goals. Hopefully, as women emerge as the predominant pediatric workforce, successful solutions will be attained to address lifestyle issues and encourage flexible and part-time work arrangements, child care, and elder benefits.

The effect of marital status on residents’ career choices has also been examined. In these studies, married physicians have a preference for subspecialist rather than general pediatrics careers, although this difference did not reach statistical significance. The presence of children has also been cited as an important influence, although not assessed in our questionnaire. While past literature suggests that married physicians with greater family demands may choose generalist careers to achieve more flexible work and time schedules, these preferences were not observed in our study sample.

The influence of educational debt on residents’ career choices is less clear. Consistent with our findings, several past studies have also supported the conclusion that debt does not influence career choices. However, Hardie and Jaskiewicz recently demonstrated an inverse association between the percentage of pediatric residents choosing subspecialty training between 1986 and 1998 and the mean educational debt during the same period. In another recent study, graduating residents with higher debts were more likely to choose general practice positions. Although there is no consistent effect of debt on residents’ career choices, training programs should consider additional financial incentives and loan repayment programs to facilitate residents’ continued training in subspecialty medicine.

An important question is to what extent these results are indicative of national trends among pediatric residents. While the results represent data generated at a single institution over a 12-year period, we note that our program has a national base distribution of trainees from across the country. Therefore, it is likely representative of core pediatric training programs at large academic centers. In addition, although the number of residents choosing subspecialty careers is higher than the national average, this percentage has declined recently in concert with national trends (data not shown). Our method of data collection may have influenced study results. While the majority of questionnaires were completed during the third year of residency (1995-2002), data from residents completing training between 1991 and 1994 were obtained retrospectively. In addition, although our response rate was high and the demographic characteristics of the respondents are similar to Table 3. Factors Affecting Resident Career Choices: Graduates From 1991-1994, 1995-1998, and 1999-2002

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Subject matter</td>
<td>9.2 ± 1.5</td>
<td>8.9 ± 1.9</td>
<td>8.9 ± 1.6</td>
<td>NS</td>
</tr>
<tr>
<td>Personal/Financial issues</td>
<td>4.3 ± 2.8</td>
<td>5.3 ± 2.4</td>
<td>5.8 ± 2.7</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>Role models</td>
<td>6.5 ± 2.6</td>
<td>7.0 ± 2.6</td>
<td>7.1 ± 2.4</td>
<td>NS</td>
</tr>
<tr>
<td>Job openings</td>
<td>3.7 ± 2.3</td>
<td>4.9 ± 2.6</td>
<td>4.7 ± 2.5</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>National trends</td>
<td>2.4 ± 1.9</td>
<td>3.5 ± 2.3</td>
<td>3.1 ± 2.4</td>
<td>&lt;.025</td>
</tr>
<tr>
<td>Technical skills</td>
<td>5.3 ± 3.3</td>
<td>5.7 ± 2.8</td>
<td>5.8 ± 2.9</td>
<td>NS</td>
</tr>
<tr>
<td>Lifestyle issues</td>
<td>6.2 ± 2.9</td>
<td>6.7 ± 2.6</td>
<td>7.7 ± 2.3</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>Research</td>
<td>5.3 ± 3.2</td>
<td>4.8 ± 3.2</td>
<td>4.5 ± 3.2</td>
<td>NS</td>
</tr>
<tr>
<td>Teaching</td>
<td>7.0 ± 2.8</td>
<td>7.2 ± 2.5</td>
<td>7.2 ± 2.3</td>
<td>NS</td>
</tr>
</tbody>
</table>

Abbreviation: NS, not significant.
*Data are presented as mean ± SD unless otherwise indicated.
†P values refer to comparisons across all 3 groups.
those of the entire group studied, the residents choosing (or not) to participate in our study may have biased the results. Finally, additional factors not assessed in our questionnaire (children, specific subspecialty interests, etc) may have affected residents’ career decisions in a manner we could not assess.14,18

In conclusion, interest in subject matter, teaching, positive influence of role models, and lifestyle issues were the most important determinants of career choices for our residents. For residents choosing generalist careers, lifestyle and personal/financial issues predominate. For those choosing subspecialist careers, the attraction of teaching, research, and performance of technical skills are key factors. Finally, over the last decade, lifestyle issues have become a more dominant factor in residents’ career decisions, particularly for women entering the pediatric workforce.

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REFERENCES