Pediatric Resident Debt and Career Intentions

abstract

OBJECTIVE: To examine current levels of educational debt among pediatric residents and the relationship between educational debt and career intentions.

METHODS: Annual national random samples of 1000 graduating pediatric residents from 2006 through 2010 were surveyed. Responses were combined. We used t tests and 1-way analysis of variance to compare debt, linear regression to examine factors associated with educational debt, and logistic regression to assess the influence of debt on clinical practice goal. Response rate was 61%.

RESULTS: Three in 4 residents reported having educational debt. The mean debt (in 2010 dollars) among all residents, which included spouse’s debt if married, increased 34% from $104,000 in 2006 to $139,000 in 2010. Among the subgroup who reported having any debt, the mean debt increased 24% from $146,000 in 2006 to $181,000 in 2010. Residents had varied clinical practice goals; 43% had goals that required fellowship training (subspecialty and combined primary-subspecialty) and 57% had goals not typically requiring fellowship training (primary care and hospitalist). In multivariate analyses, debt level (low, medium, high) remained an independent predictor of practice goal. Residents with medium debt (adjusted odds ratio: 1.48, 95% confidence interval: 1.16–1.84) and high debt (adjusted odds ratio: 1.51; 95% confidence interval: 1.20–1.90) had higher odds than residents with low debt of having a practice goal that does not typically require fellowship training. Other factors also had an independent association with career choice.

CONCLUSIONS: Multiple factors shape decisions about careers. Higher educational debt is one factor that may push residents toward primary care or hospitalist practice, rather than pursuing fellowship training. Pediatrics 2013;131:312–318

AUTHORS: Mary Pat Frintner, MSPH,a Holly J. Mulvey, MA,b Beth A. Pletcher, MD,c and Lynn M. Olson, PhDa

Departments of aResearch, and bEducation, American Academy of Pediatrics, Elk Grove Village, Illinois; and cUniversity of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark, New Jersey

KEY WORDS pediatric residency, educational debt, pediatric work force

ABBREVIATIONS AAP—American Academy of Pediatrics
aOR—adjusted odds ratio
CI—confidence interval

Ms Frintner, Ms Mulvey, Dr Pletcher, and Dr Olson have made substantive intellectual contributions to the article and have met the following criteria: (1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published. Each author has participated sufficiently in the work to take public responsibility for appropriate portions of the content.

The views in this article are those of the authors and do not necessarily represent the views of the American Academy of Pediatrics.

www.pediatrics.org/cgi/doi/10.1542/peds.2012-0411
doi:10.1542/peds.2012-0411
Accepted for publication Oct 1, 2012

Address correspondence to Mary Pat Frintner, MSPH, Department of Research, American Academy of Pediatrics, 141 Northwest Point Blvd, Elk Grove Village, IL 60007. E-mail: mfrintner@aap.org

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: This research was supported by the American Academy of Pediatrics.
Educational debt is an important topic in medicine, particularly to young physicians who have accrued substantial debt and are unable to start paying it back for many years, depending on their length of training. Approximately half of medical school graduates have student debt of at least $150,000, and debt levels are increasing among graduating pediatric residents. Various factors might influence career choice, including educational debt. Studies on debt and medical students’ career choices have reported conflicting results regarding the impact of debt on career decision-making, with some suggesting that students with higher debt were less likely to choose primary care specialties. The relationship between educational debt and career decision-making during residency training is also unclear. Primary care disciplines are sometimes aggregated in studies on career choice, but trainee views and preferences in the disciplines might not be the same. One study assessing the association between debt and reported career goals among internal medicine residents found that residents with greater educational debt were less likely to have plans for a subspecialty career. A similar study with a national sample of graduating residents has not been done in pediatrics.

More needs to be learned about educational debt and the relationship between debt and career intentions among pediatric residents. This study examines (1) current levels of debt that pediatric residents are facing and (2) the relationship between educational debt and career intentions.

**METHODS**

We analyzed data from 5 years of the American Academy of Pediatrics (AAP) Graduating Resident Survey, 2006 through 2010. This survey is distributed annually to a random sample of 1000 graduating pediatric residents during and after their last months of training (May to September). Residents are randomly selected from an AAP database that includes all US residents. Residents from dual-degree programs, such as combined internal medicine and pediatrics programs are not included. Residents are contacted up to 4 times via the US Postal Service and up to 4 times by e-mail, for a total of up to 8 contacts.

The surveys included identical questions each year on (1) resident characteristics, (2) educational debt, and (3) career plans.

Data collected from residents included demographics, residency program size, and educational debt. They were asked if they had any educational debt and, if yes, to provide the total debt amount, including college, medical school, as well as spouse’s educational debt. Adjustments for inflation were performed using the yearly Consumer Price Index to convert debt level values to 2010 dollars. Residents were asked to indicate whether their future clinical practice goals included primary care, subspecialty care, combined primary and subspecialty care, hospitalist practice, or not entering clinical practice.

Data on gender and age was available in the AAP database, from which the sample was drawn. We used $\chi^2$ and $t$ tests to compare gender and age of the respondents to those of non-respondents to assess potential response bias. Responses from all 5 survey years were combined. $t$ tests and 1-way analysis of variance were used to compare mean debt for survey year, residency program size, resident characteristics, and clinical practice goal. Linear regression was used to examine various factors associated with educational debt including survey year, gender (male, female), age (≤31, >31 years, dichotomized by mean age), race (Hispanic; white, non-Hispanic; black or African American; Asian; other), marital status (married to nonphysician, married to a physician, not married), have children (yes, no), medical school (United States, international), and program size (≤19, >19 residents per class, dichotomized by mean class size).

$\chi^2$ test was used to explore the relationship between educational debt and future clinical practice goal. When used as a predictor variable, debt was divided into 3 categories, based on tertile percentiles: low debt ($0–$50,999), medium debt ($51,000–$182,499), and high debt (≥$182,500). Future clinical practice goal was dichotomized on the basis of goals requiring subspecialty training (subspecialty or combined primary care and subspecialty practice) and those not requiring subspecialty training (primary care practice or hospitalist).

Logistic regression was used to assess the influence of debt and resident characteristics on future clinical practice goal. Predictor variables included in the model are the same as those listed earlier, plus debt (low, medium, and high debt).

The number of cases in each statistical analysis varied slightly because of missing values for specific questions (<5% for any individual question). Surveys for this study were approved by the AAP Institutional Review Board.

**RESULTS**

**Respondents**

Response rates to the survey varied from a high of 64% in 2007 to a low of 58% in 2009 and 2010; the combined response rate was 61% ($n = 3034$). Of the 3034 residents, 103 responded that they were not third-year residents and returned uncompleted surveys as instructed. Residents who did not answer the questions on debt and/or clinical practice goal and those who responded that they were not entering clinical practice...
were not included in the analyses ($n = 223$). The final study sample size was 2708.

For all survey years combined, significant differences were found between respondents and nonrespondents for gender (percentage female: 74% vs 68%, $P < .001$) but not age (mean age respondents: 31.4 and nonrespondents: 31.5 years, $P = .15$).

Demographic characteristics of the respondents are shown in Table 1. Approximately three-fourths were women, and about one-fifth graduated from a medical school outside the United States. Both percentages are similar to the American Board of Pediatrics Workforce Data on third-year residents.13 Sixty-two percent of respondents were white, 21% Asian, 7% Hispanic, 6% black or African American, and 5% selected “other” race. Respondent race percentages are similar to self-reported race breakdown reported by the Association of American Medical Colleges.15

### Debt

Almost three-fourths (74%) of the residents reported that they had educational debt from medical school and college. The mean debt (in 2010 dollars) among all residents, which included spouse’s debt if married, was $120,000, ranging from a low of $0 to a high of $580,000. The mean debt among the subgroup of residents who reported having any debt was $162,000.

As shown in Fig 1, based on inflation-adjusted dollars, the mean resident debt for all respondents increased 34% from $104,000 in 2006 to $139,000 in 2010. Among the subgroup of residents with educational debt, the mean debt increased 24% from $146,000 in 2006 to $181,000 in 2010 (see Fig 1).

Mean debt for all respondents varied by several resident characteristics (see Table 2). Women had higher debt than men, and younger residents ($\leq 31$ years) had more debt than residents $> 31$ years, $P < .001$. White, non-Hispanic, and African American/Black pediatricians had higher debt than Hispanic and Asian residents, $P < .001$. Residents from larger residency programs had higher debt than those from smaller programs. The highest debt was found among residents married to a physician, and the lowest debt was reported by those who graduated from international medical schools. In the multivariate model, survey year, gender, race, marital status, and medical school remained significant, $P < .01$.

### Career Intentions

Regarding residents’ overall future clinical practice goals, 45% planned for primary care practice ($n = 1204$), 36% subspecialty practice ($n = 975$), 7% combined primary care and subspecialty practice ($n = 192$), and 12% hospitalist practice ($n = 337$). Thus, 43% were in the group of residents with goals requiring fellowship training and 57% were in the group not requiring fellowship training.

Residents’ debt level varied by practice goals. The highest mean debt ($135,000) was reported by those with a hospitalist goal, followed by primary care ($126,000), subspecialty ($113,000) and combined primary care and subspecialty ($87,000), $P < .001$. In bivariate analyses, we compared debt levels (low, medium, and high) and respondents’ reported goals. Residents with medium or high debt were more likely to have practice goals that do not require fellowship training (primary care practice or hospitalist goals), $P < .001$ (see Fig 2).

![FIGURE 1](image-url)

US pediatric resident-reported mean educational debt, 2006 to 2010. All data are in constant 2010 dollars. Debt includes college, medical school, and, if married, spouse educational debt. Lower line represents all residents who answered the questions on debt ($n = 2708$). Upper line represents a subgroup of the respondents: all residents who reported having any debt ($n = 1998$).
In multivariate analyses, controlling for resident characteristics, debt level remained an independent predictor of practice goals (see Table 3). Residents with medium debt (adjusted odds ratio [aOR]: 1.46; 95% confidence interval [CI]: 1.16–1.84) and high debt (aOR: 1.51; 95% CI: 1.20–1.90) had higher odds than residents with low debt of having a practice goal that does not require fellowship training (primary care or hospitalist) rather than a goal typically requiring fellowship training (subspecialist or combined primary care–subspecialty goal). This finding is consistent with other studies that have found a relationship between debt and career choice. Residents who were women (aOR: 2.22; 95% CI = 1.84–2.68), Hispanic (aOR: 1.43; 95% CI: 1.02–2.00), or married to a nonphysician (aOR: 1.37; 95% CI: 1.11–1.69), had children (aOR: 1.48; 95% CI: 1.20–1.79), or graduated from a US medical school (aOR: 1.41; 95% CI: 1.09–1.83), or were from smaller residency programs (aOR: 1.58; 95% CI: 1.33–1.87) were more likely to report a primary care or hospitalist goal. To test the validity of the debt categories, we conducted a cross-check analysis that included the same set of predictor variables except debt was included as a continuous variable; the same patterns emerged.

**DISCUSSION**

Using the AAP Graduating Resident Surveys from 2006 through 2010, we found that nearly 3 in 4 pediatricians have educational debt at the time they are leaving residency, and more than one-third have debt >$155 000. Graduating residents with higher debt are more likely to have a future clinical practice goal that does not require fellowship training (primary care or hospitalist) rather than a goal that requires fellowship training (subspecialty or primary care–subspecialty practice goal).

The high educational debt reported by graduating residents in our study is similar to the mean debt reported by the Association of American Medical Colleges for 2011 medical school graduates ($118 000 for all students; $161 000 for indebted students).1,16 Our study and others17,18 report that debt level continues to climb over time. Continued increases in debt might result in serious hardships for young pediatrics. Anticipated debt might discourage qualified individuals from pursuing a career in medicine17,18 or pursuing fellowship training in the future. It may also pose a disproportionate barrier for individuals who come from a socioeconomically disadvantaged background and/or are members of a racial or ethnic group that are traditionally underrepresented in medicine (eg, black or African American) and who are recognized to provide a larger proportion of care to underserved patients.18,19 Although overall debt levels were not higher among Hispanic residents, they were more likely to have a primary care or hospitalist goal. Additional research is needed to understand whether debt is an additive barrier for underrepresented minority physicians to pursue pediatric subspecialty training.

These findings need to be considered in the context of a complex set of issues related to the pediatric workforce. Although debt is clearly rising and our data shows a relationship between debt and career choice (higher debt seems to be associated with a push toward primary care or hospitalist practice), we have not observed an increase in the

---

**TABLE 2 Educational Debt of Graduating Pediatric Residents (n = 2708)**

<table>
<thead>
<tr>
<th>Debt (in constant 2010 US$)</th>
<th>Mean (95% CI)</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey yeara,b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>104 000 (96 000–112 000)</td>
<td>91 000</td>
</tr>
<tr>
<td>2007</td>
<td>111 000 (103 000–119 000)</td>
<td>105 000</td>
</tr>
<tr>
<td>2008</td>
<td>120 000 (111 000–128 000)</td>
<td>122 000</td>
</tr>
<tr>
<td>2009</td>
<td>126 000 (116 000–135 000)</td>
<td>133 000</td>
</tr>
<tr>
<td>2010</td>
<td>139 000 (130 000–149 000)</td>
<td>140 000</td>
</tr>
<tr>
<td>Gendera,b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>104 000 (97 000–112 000)</td>
<td>96 000</td>
</tr>
<tr>
<td>Women</td>
<td>126 000 (121 000–130 000)</td>
<td>126 000</td>
</tr>
<tr>
<td>Agea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥31 y</td>
<td>97 000 (89 000–104 000)</td>
<td>61 000</td>
</tr>
<tr>
<td>≤31 y</td>
<td>130 000 (126 000–135 000)</td>
<td>150 000</td>
</tr>
<tr>
<td>Racea,b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>74 000 (66 000–82 000)</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>82 000 (78 000–86 000)</td>
<td>49 000</td>
</tr>
<tr>
<td>Other</td>
<td>95 000 (75 000–114 000)</td>
<td>63 000</td>
</tr>
<tr>
<td>Black/African American</td>
<td>127 000 (110 000–143 000)</td>
<td>126 000</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>140 000 (136 000–145 000)</td>
<td>142 000</td>
</tr>
<tr>
<td>Marital statusa,b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married</td>
<td>112 000 (106 000–119 000)</td>
<td>120 000</td>
</tr>
<tr>
<td>Married to a nonphysician</td>
<td>111 000 (106 000–116 000)</td>
<td>115 000</td>
</tr>
<tr>
<td>Married to a physician</td>
<td>148 000 (137 000–150 000)</td>
<td>141 000</td>
</tr>
<tr>
<td>Have children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>116 000 (109 000–123 000)</td>
<td>105 000</td>
</tr>
<tr>
<td>No</td>
<td>122 000 (117 000–127 000)</td>
<td>125 000</td>
</tr>
<tr>
<td>Medical schoola,b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International</td>
<td>39 000 (32 000–46 000)</td>
<td>0</td>
</tr>
<tr>
<td>US</td>
<td>142 000 (138 000–146 000)</td>
<td>141 000</td>
</tr>
<tr>
<td>Program class sizea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤19 residents</td>
<td>114 000 (109 000–120 000)</td>
<td>108 000</td>
</tr>
<tr>
<td>&gt;19 residents</td>
<td>129 000 (123 000–134 000)</td>
<td>130 000</td>
</tr>
</tbody>
</table>

a Variable significantly associated (P < .01) with educational debt in bivariate analyses.
b Variable significantly associated (P < .01) with educational debt in multivariate analysis including other predictors.
percentage of pediatric residents pursuing primary care careers. Data from 2003 to 2009 suggest a modest decline in graduating pediatric resident interest in primary care while interest in subspecialty practice increased. It is possible that the decrease in primary care interest might be even greater if debt level was not increasing.

**TABLE 3** Predictors of Resident-Reported Future Clinical Practice Goal

<table>
<thead>
<tr>
<th>Debt level</th>
<th>Primary Care or Hospitalist Goal&lt;sup&gt;a&lt;/sup&gt; (95% CI)</th>
<th>aOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low debt (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium debt</td>
<td>1.46 (1.18–1.84)</td>
<td></td>
</tr>
<tr>
<td>High debt</td>
<td>1.51 (1.20–1.90)</td>
<td></td>
</tr>
<tr>
<td>Survey year</td>
<td>0.97 (0.92–1.03)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2.22 (1.84–2.68)</td>
<td></td>
</tr>
<tr>
<td>Younger age (≤51 y)</td>
<td>1.08 (0.89–1.31)</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
<td>1.32 (0.91–1.91)</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>1.02 (0.82–1.27)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.43 (1.02–2.00)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0.91 (0.60–1.38)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married (reference)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married to a nonphysician</td>
<td>1.37 (1.11–1.69)</td>
<td></td>
</tr>
<tr>
<td>Married to a physician</td>
<td>1.26 (1.00–1.40)</td>
<td></td>
</tr>
<tr>
<td>Have children</td>
<td>1.48 (1.20–1.78)</td>
<td></td>
</tr>
<tr>
<td>US medical school</td>
<td>1.41 (1.09–1.83)</td>
<td></td>
</tr>
<tr>
<td>Smaller program class</td>
<td>1.58 (1.33–1.87)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Reference = subspecialty or combined primary care–subspeciality career goal

Annual surveys of first time American Board of Pediatrics general pediatric examination applicants over the past decade shows a steady, although uneven growth in the proportion of graduating pediatric residents planning to pursue medical subspecialty training. However, the total number of pediatric subspecialty trainees might not address the need for certain pediatric medical subspecialists. Among 2010 American Board of Pediatrics applicants in fellowship training, <3% were in subspecialty career areas such as developmental-behavioral pediatrics, adolescent medicine, or pediatric rheumatology (where there is a perceived shortage); >10% of trainees were in areas such as pediatric cardiology and hematology-oncology and 20% in neonatal-perinatal medicine (where there is a perceived sufficient or oversupply). Growth in the training of pediatric subspecialists may be uneven because of discrepancies in subspecialty shortages compared with trainee preferences. Furthermore, pediatric medical subspecialists are more likely to practice in academic centers, which present access to care issues associated with geographic maldistribution. At the same time, there are also geographic areas in the United States without primary care pediatricians. To address both subspecialty and primary care geographic maldistribution, new public policy is needed. Residents with higher debt might be more likely to select primary care or hospitalist careers to avoid accruing additional debt during fellowship training and obtain a position with a higher postresidency salary to start paying off student loans. Physician salaries vary considerably by specialty, with pediatricians among the lowest paid, and the starting salaries for general pediatric positions reported by graduating residents have remained relatively flat from 2003 to 2009. Rising educational debt coupled with a considerably lower salary than many other specialties puts young pediatricians at a disadvantage as they start their postresidency careers or subspecialty training. While some subspecialties in pediatrics such as cardiology and neonatology might have better financial returns than others after additional years of training, data suggest that these subspecialties are not the ones for which there is a perceived undersupply. Therefore, if there is a financial disincentive to pursue fellowship training based on debt accrued by the completion of general pediatric training, growing debt loads may further deter entrance of pediatric trainees into fellowship programs in fields that are less financially advantageous and where there is a perceived undersupply.

This study reinforces that multiple factors shape pediatricians’ career goals and that there is nothing simple about career decisions. We found several factors in addition to debt that had an independent effect on career plans, including gender, Hispanic race, program size, parental and marital status, and medical school location. There are other possible factors, not measured in the current study, that might influence career choice, including lifestyle choices, interest in specific disciplines, interest in

---

**FIGURE 2**

Pediatric resident-reported future clinical practice goal by educational debt.
spousal debt, so for these individuals, we are unable to separate out the debt load for the respondent versus their spouse. We do not have data on socioeconomic indicators of residents (eg, education of parents), background information (eg, country of origin, citizenship), or whether the respondents received financial support or scholarships to college and/or medical school. Additional research is needed to better understand the complexities of career decision-making.

CONCLUSIONS

Educational debt among graduating pediatric residents is high and continues to increase. Deciding on a career path is a critical personal decision for each graduating pediatric resident; multiple factors will shape this decision. This study finds that a higher educational debt load is one factor that may push residents toward primary care or hospitalist practice, rather than pursuing fellowship training and a subspecialty career. At the same time, other factors, such as being a female and having children, had an equivalent effect on the likelihood that a resident will seek a primary care or hospitalist position. Additional studies on these practice trends are needed to better anticipate supply and demand as well as what is needed to achieve a balance between pediatric primary and individual subspecialty medical services to meet the needs of America’s children.

ACKNOWLEDGMENTS

We thank all the pediatricians who responded to the survey across the years as they graduated from residency. We also acknowledge William Cull, PhD, for his statistical advice.

REFERENCES


20. Pletcher BA, Rimsha ME, Cull WL, Shipman SA, Shugerman RP, O’Connor KG. Primary


Pediatric Resident Debt and Career Intentions
Mary Pat Frintner, Holly J. Mulvey, Beth A. Pletcher and Lynn M. Olson
Pediatrics 2013;131:312; originally published online January 6, 2013;
DOI: 10.1542/peds.2012-0411

Updated Information & Services
including high resolution figures, can be found at:
/content/131/2/312.full.html

References
This article cites 22 articles, 10 of which can be accessed free at:
/content/131/2/312.full.html#ref-list-1

Citations
This article has been cited by 3 HighWire-hosted articles:
/content/131/2/312.full.html#related-urls

Post-Publication Peer Reviews (P3Rs)
One P3R has been posted to this article:
/cgi/eletters/131/2/312

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
Medical Education
/cgi/collection/medical_education_sub
Career Development
/cgi/collection/career_development_sub

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml
Pediatric Resident Debt and Career Intentions
Mary Pat Frintner, Holly J. Mulvey, Beth A. Pletcher and Lynn M. Olson
Pediatrics 2013;131:312; originally published online January 6, 2013;
DOI: 10.1542/peds.2012-0411

The online version of this article, along with updated information and services, is
located on the World Wide Web at:
/content/131/2/312.full.html