Effect of Generalist Preceptor Specialty in a Third-Year Clerkship on Career Choice

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Background and Objectives: An association exists between student participation in a family medicine clerkship and student selection of family practice as a career. The effect of student exposure to other generalist specialties on career choice is unknown. This study determined if the specialty of an assigned generalist preceptor during a third-year ambulatory clerkship affected medical students' choice of a generalist career. Methods: We conducted a retrospective cohort study of 464 medical students who were randomly assigned to either a family physician or a general internist for a 4-week, third-year ambulatory clerkship. Results: There was no significant relationship between preceptor assignment and students' generalist career choice. Students assigned to general internal medicine preceptors were not more likely to choose careers in general internal medicine, nor were students assigned to family medicine preceptors more likely to select careers in family practice. Conclusions: Previous studies have suggested that generalist experiences during medical school can influence students' career preference. This study, however, indicates that the type of generalist experience received during the third year did not affect students' choice of a generalist career, nor did it influence their career choice between the generalist specialties.

The growth of managed care and the continued maldistribution of physicians have increased the need for primary care physicians.\(^1\)\(^3\) In response, many medical schools have attempted to increase the output of family physicians, general internists, and general pediatricians to meet estimated workforce needs. Such efforts have included changes in the admissions process to identify applicants who possess characteristics associated with generalist specialty choice.\(^4\)\(^7\) Other efforts have involved changes in the structure and content of medical school curricula. For example, many schools have implemented required primary care or ambulatory clerkships in the third year. Previous studies showing an association between the presence of a third-year family medicine clerkship and the number of students choosing a family practice residency have given some credence to the hypothesis that training in primary care settings during medical school will increase student interest in generalist careers.\(^8\)\(^9\)

As part of a larger effort to promote medical students' interest in generalist careers, the University of Virginia School of Medicine started a primary care ambulatory medicine (PCAM) clerkship during the 1993–1994 academic year. PCAM, a required 1-month clerkship for all third-year students, was the principal opportunity within the curriculum for students to experience generalist practice in a community setting. To evaluate the effect of the PCAM experience on student career choice, we addressed two research questions: (1) Does the specialty of the assigned generalist preceptor affect students' choice of a generalist career? (2) Are those students who select generalist careers more likely to choose the same generalist specialty as their PCAM preceptors?

Methods

This was a retrospective cohort study. The study population included medical students who completed the PCAM between the 1993–1994 and 1996–1997 academic years and who graduated from medical school between 1995 and 1998.

Setting

PCAM was incorporated into the curriculum in the fall of 1993 as a 1-month, required clerkship for all third-year medical students. The clerkship was devel-
oped and administered by two codirectors—a family physician and a general internist. Each student was assigned to a preceptor in either a family medicine or internal medicine community practice. Students spent the majority of their time in the community practice and returned to the medical center for 2 days each month to participate in a series of lectures, workshops, and problem-solving sessions taught by family medicine and general medicine faculty. The content of these sessions was relevant to both primary care disciplines, and the clerkship codirectors and faculty modeled a collegial and mutually respectful relationship.

At that time, PCAM was the only significant exposure to ambulatory medicine required in the curriculum. Students had no other exposure to ambulatory medicine during the internal medicine clerkship, which consisted of three 1-month blocks of general and specialty inpatient medicine. During their second year, students spent 1 week with a community primary care preceptor. In the first year, students spent 3 half days with a community primary care physician.

Preceptor Assignment

Students were assigned to physician preceptors who were board eligible or board certified in either family practice or internal medicine. With a few exceptions described below, the clerkship coordinator randomly assigned students to preceptor sites without regard for student preference pertaining to specialty or location. The majority of internal medicine preceptors were general internists; however, a few internal medicine sites included internal medicine subspecialists who also provided primary care or worked with general internists. Preceptor sites were located across Virginia in a wide variety of rural, suburban, and urban settings. The age of preceptors from both specialties ranged from 30 to 60; the majority were less than 50. Most had been in practice for 10 years or less, and few had teaching experience prior to the PCAM clerkship.

Preceptors were asked to focus on ambulatory care education during PCAM. While 50%–60% of students in both groups performed some hospital work, this work comprised a small percentage of the overall amount of time the student spent with the preceptor.

The following students were excluded from the analysis: 22 students assigned to practices with both family medicine and general medicine preceptors and three students in the Generalist Scholars Program who were given preference for their choice of preceptor and were not randomly assigned.

Data Collection

Data regarding preceptor assignment, description of the preceptor site, and month and year of the student’s clerkship were obtained from PCAM clerkship records. Data regarding career choice and generalist specialty choice came from the questionnaire item, “What are your plans for a practice specialty?” from the Graduation Questionnaire (GQ) distributed by the Association of American Medical Colleges (AAMC) and administered annually to each fourth-year class near the time of graduation. “Generalist career choice” was defined as the student’s selection of a generalist residency (family practice, general internal medicine, or general pediatrics) and affirmation on the GQ of a plan to pursue a career in primary care. “Generalist specialty choice” was the student’s selection of either family practice or general internal medicine, as measured at graduation on the GQ. Demographic data, including the student’s gender, race, rural background status, and college major, were obtained from the American Medical College Application Service (AMCAS) student profile sheet in each student’s record.

Data Analysis

Students were separated into two groups based on whether they had been assigned to work with a family physician preceptor or general internist preceptor during their PCAM clerkship. To determine whether random preceptor assignment created equivalent groups of students, demographic differences between the two groups were compared using chi-square analysis for the categorical variables gender, race, rural residence, and science major and using a two-sided Student’s t test for the continuous variables of age, science grade point average (GPA), and Medical College Admissions Test (MCAT) science score. Relative risk was calculated to measure the effect of preceptor assignment on generalist career choice and generalist specialty choice.

A stratified analysis was conducted by year, since preceptor sites, the structure of the workshops, and the clerkship codirectors changed over time. Relative risks were calculated for each year, a test of heterogeneity was performed, and a summary relative risk was calculated using the Mantel-Haenszel estimate.

A logistic regression was performed to control for variables that have been associated with choosing a generalist career. In this regression analysis, generalist career choice was the dependent variable, and independent variables were gender, race, rural residence, science major, science GPA, non-science GPA, MCAT science composite score, MCAT non-science composite score, assigned preceptor specialty, and month of the rotation.

Results

A total of 489 students completed the PCAM clerkship and subsequently graduated between 1995 and 1998. Twenty-five students were excluded from the study, and the remaining 464 students were included in the analysis. This number of students provides a power of 80% to show a 5% difference between groups at a level of significance of $P = .05$. 
Of these 464 students, 251 were assigned to family medicine preceptors, and 213 students were assigned to internal medicine preceptors. The two groups did not differ significantly with regard to rural residence, gender, age, undergraduate major, race, science GPA and MCAT science scores (all P > .25) (Table 1), indicating that the randomization process created similar groups.

**Specialty Choice**

A total of 173 students (37.3%) selected a generalist career; 59 (12.7%) chose family practice, 52 (11.2%) chose general internal medicine, and 62 (13.4%) chose general pediatrics. There was no significant difference in the proportion of students who chose a generalist career between the groups assigned to preceptors of different specialties (Mantel-Haenszel summary relative risk ratio estimate = 1.11, CI = .83, 1.51). The stratified analysis indicated no significant effect of preceptor assignment on generalist career choice in any single year and no differences between years ($\chi^2$ = 1.88, df = 3, P > .10, Table 2). The logistic regression analysis also showed no association between preceptor assignment and generalist career choice after controlling for potential confounding variables.

Students assigned to general internal medicine preceptors were not more likely to choose careers in general internal medicine than were students assigned to family medicine preceptors (Mantel-Haenszel summary relative risk ratio = .81, CI = .47, 1.4). There was no significant effect of assignment to a general internist on generalist specialty choice in any given year or between years ($\chi^2$ = 1.67, df = 3, P > .10).

Similarly, students assigned to family medicine preceptors were not more likely to select careers in family practice than were students assigned to internal medicine preceptors (Mantel-Haenszel summary relative risk ratio = .95, CI = .57, 1.59). There was no significant effect of assignment to a family medicine preceptor on generalist specialty choice in any single year, and there was no difference in risk ratios between years ($\chi^2$ = 1.88, df = 3, P > .10).

Overall, the proportion of University of Virginia students selecting internal medicine residencies was lower than that of all US students. The percentage of University of Virginia students matching in family practice was similar to that of all US students (Figure 1). There was no difference in the percentage of students choosing a generalist career in the 4 years preceding initiation of PCAM and the 4 years following initiation of PCAM.

**Discussion**

Assignment to either a family medicine or general internal medicine preceptor site for a required third-year clerkship had no apparent effect on whether a student chose a generalist career or whether a student chose family practice or general internal medicine as a specialty. There are several possible explanations for these findings.

First, the overall student experiences in the family medicine and general internal medicine community sites may have been similar. Eighty-three percent of

<table>
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<th>SPECIALITY OF PRECEPTOR</th>
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<tbody>
<tr>
<td>Student</td>
</tr>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>Rural residence</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Science major</td>
</tr>
<tr>
<td>Caucasian</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Science GPA</td>
</tr>
<tr>
<td>MCAT science</td>
</tr>
</tbody>
</table>

* Chi-square
† t-test

GPA—grade point average
MCAT—medical college admission test

Table 1

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>General Internal Medicine Preceptor</th>
<th>Family Medicine Preceptor</th>
<th>RR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993–1994</td>
<td>.64</td>
<td>.55</td>
<td>1.11 ( .75, 1.62)</td>
</tr>
<tr>
<td>1994–1995</td>
<td>.39</td>
<td>.34</td>
<td>1.16 ( .64, 2.1)</td>
</tr>
<tr>
<td>1995–1996</td>
<td>.32</td>
<td>.39</td>
<td>.82 ( .44, 1.52)</td>
</tr>
<tr>
<td>1996–1997</td>
<td>.41</td>
<td>.34</td>
<td>1.2 ( .64, 2.27)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>.39</td>
<td>.35</td>
<td>1.11 ( .83, 1.5)</td>
</tr>
</tbody>
</table>

* The proportion of students assigned to a family medicine preceptor who selected generalist career was the reference group.

RR—relative risk
CI—confidence interval

Table 2

Propotion of Students Selecting a Generalist Career According to Assignment to a Family Medicine or Internal Medicine Preceptor, Stratified by Year
visits to family physicians are by adult patients, and adult patients in internal medicine and family practice settings present with similar health care needs. In addition, all students participated in common educational activities during their 2 days of workshops, small groups, and problem-solving sessions. As a result, their overall clerkship experiences may have been similar.

Second, other factors may have influenced a student’s career choice more than preceptor assignment on a 4-week ambulatory medicine rotation. Such factors include prior experiences and values, preference for certain patient populations, educational experiences in other clerkships, high debt levels, income expectations, and options to sub-specialize at a later stage of training.

Third, preceptor assignment may have had an initial effect on specialty preference, but this effect may have been diluted over time by additional educational experiences during the third and fourth years of medical school. Finally, the 4-week PCAM experience may not have been long enough to influence students’ career preferences.

Limitations

Although the random assignment of students to preceptorship sites provided a sound experimental model for this study, there are several potential limitations. First, the immediate effect of the PCAM clerkship on career choice was not measured. Second, there was no comparison group of students who did not have the PCAM experience. Third, the outcome measure was taken at the time of graduation, but ultimate career choice could change during the course of a residency program.

Summary

Our study found that a 4-week primary care preceptorship had no effect on students’ career choice. This is consistent with other studies demonstrating little or no benefit from primary care clerkships that combine internal medicine and family medicine experiences. Exposing students to primary care experiences may have other important benefits, such as improving attitudes of students and faculty toward primary care. To increase student exposure to primary care at the University of Virginia, the school ended PCAM and started a required 4-week family medicine clerkship. The 3-month internal medicine clerkship also was modified to a 2-month inpatient experience and 1-month community-based ambulatory experience. As a result of these changes, all students now receive a concentrated exposure to family medicine and an additional month of community-based ambulatory medicine. While student characteristics and preferences measurable at matriculation are the most important predictors of a primary care career, curricular experiences remain necessary to support and develop students’ interest in primary care careers.
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