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# Factors Associated with a Career in Primary Care Medicine: Continuity Clinic Experience Matters



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**BACKGROUND:** Due to concerns of inadequate primary care access, national agencies like the Health Resources and Services Administration (HRSA) support primary care (PC) residencies. Recent research demonstrates that up to 35% of PC alumni lost interest in PC during residency. These alumni who lost interest noted that their continuity clinic experience influenced their career choice. The purpose of this study was to identify the specific aspects of PC residency experience that influenced career choice.

**METHODS:** We conducted a cross-sectional electronic survey of a PC internal medicine alumni cohort (2000–2015) from a large, academic residency. Our primary predictor was PC career and our primary outcome was influential factors on career choice. We performed chi-squared or Fisher's exact tests for categorical variables and *t* tests for continuous variables.

**RESULTS:** Of the 317 PC alumni in the last 15 years, 305 were contacted. One hundred seventy-two (56%) responded with 94 (55%) reporting current careers in PC and 78 (45%) in non-PC fields. Ninety-four percent of respondents expressed interest prior to residency, while only 68% remained interested at the conclusion of residency. Sixty-one percent of PC alumni rated the overall clinic experience as the most influential factor towards their ultimate career choice. The patient-physician relationship was the most frequently endorsed positively influential factor in career choice in both groups (95% of PC alumni, 76% non-PC). There was no difference among all alumni in common frustrations of clinic including clerical duties, encounter documentation, or visit length. Similarly, resident debt did not differ between groups.

**CONCLUSIONS:** Strong interpersonal relationships with patients and clinic mentors were associated with a PC career. These factors may compensate for the reported frustrations of clinic. Enhancing patient and mentor relationships may increase the retention of PC residents in ambulatory careers and may help address the current and projected shortage of primary care physicians.

## BACKGROUND

Health Resources and Services Administration (HRSA) and the Council on Graduate Medical Education (COGME) recommend that at least 40% of US physicians should practice primary care.<sup>1</sup> There is, however, a national shortage of primary care physicians (PCP), and the deficit is expected to rise to 49,000 by 2030.<sup>2,3</sup> To address this deficit, both HRSA and COGME financially support primary care (PC) residencies to promote PCP careers. Despite existing PC residencies, increased demand for PCPs from the Affordable Care Act, and the recent passage of the Educating Medical Professionals and Optimizing Workforce and Readiness Act “EMPOWER Act,”<sup>4</sup> many issues remain in retaining trainees in PC.<sup>5</sup> One study demonstrated a striking 35% of alumni from primary care residencies lost interest in primary care during training.<sup>5</sup>

Research highlights the power of nurture over nature to encourage residents to choose a primary care field.<sup>6</sup> Previous studies evaluated how residency-specific aspects such as mentorship and role modeling<sup>7,8</sup>, collegiality within the clinical care team<sup>9</sup>, work-life balance<sup>10</sup>, clinical environment, and coordination of care<sup>11</sup> play a significant role in the primary care resident's experience.

While these studies identify components of the ambulatory clinic experience that influence residents' ultimate career choice, they do not compare the specific differences between residents who leave primary care and those who pursue a primary-care career. We hypothesize that experiential and interpersonal factors ultimately lead to retention or atrophy of resident's interest in primary care. The purpose of this study was to identify the specific aspects of the residency clinic experience that influenced primary care residency alumni career choice. Focusing on the factors associated with maintaining interest in primary care as identified by this study could ultimately increase retention of residents in primary care.

## METHODS

### Design

We conducted a cross-sectional electronic survey of a cohort of alumni from the University of California at San Francisco

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(UCSF) primary care internal medicine residency who graduated between 2000 and 2015.

## Setting and Participants

The UCSF internal medicine residency program includes two primary care tracks. Each track has a separate match number and every resident spends seven months in dedicated outpatient primary care rotations, alternating with inpatient rotations during each of their second and third years of residency. The UCSF Primary Care General Internal Medicine track (UCPC) is designed to train leaders in general medicine through dedicated training in ambulatory medicine, primary care continuity clinics, and an ambulatory curriculum. UCPC is based at a tertiary-care, university medical center and serves a 1/3 mix of Medicare, Medicaid, and private insurance patients. The UCSF San Francisco General Hospital Primary Care track (SFPC) focuses its internal medicine residency training on primary care training to serve an urban underserved patient population. It is based at a safety-net county hospital where most patients are insured under Medicare or Medicaid.

## Procedures

A senior faculty member (JK) emailed alumni a personal link to a 17-item survey using Qualtrics software, a web-based survey program, to all alumni with publicly identifiable email addresses. We emailed our survey weekly for three consecutive weeks in December 2015. Participation in the survey was voluntary. Responses were de-identified for analysis. The UCSF Committee on Human Research approved this study, and all the participants provided electronic written informed consent.

We developed our survey based on a review of previously utilized residency alumni surveys, input from residency faculty and local survey experts, feedback from current residents, and input from senior advisors from the UCSF Academy of Medical Educators. The survey was then piloted at two separate residency research “work-in-progress” sessions.

Survey questions were organized into sections that described demographic, educational, interpersonal, and workflow-related factors and how those influences changed interest in a primary care career. We asked alumni to provide demographic information and their PC residency track. Educational factors evaluated included primary care curriculum, inpatient time during training, and mastery of ambulatory clinical problems. Interpersonal factors included satisfaction with patient relationships, access to role models, and patient population served. Workflow-related factors included perceived burden of documentation, time pressure to see patients, clerical duties, and availability of support from interdisciplinary staff. Alumni were also asked to report their current clinical duties, debt level, interest in an outpatient primary care career pre- and post-residency, and how aspects of the ambulatory and inpatient experience during residency positively or negatively influenced their career choice towards

primary care (Appendix 1). Items were rated on a 5-point Likert scale from strong negative influence away from primary care to strong positive influence towards primary care.

## Analysis

We determined whether each participant was in an outpatient primary care career at the completion of residency defined as responding that their current primary clinical role was as a generalist clinician in an outpatient setting or generalist fellow (geriatrics, palliative care, general internal medicine, health policy, or Robert Wood Johnson fellowship) on the first question of the survey. We ran descriptive statistics and performed chi-squared or Fisher’s exact tests for categorical variables and *t* tests for continuous variables to compare characteristics of those who pursued primary care careers after residency versus those who did not.

Participants rated positive and negative factors influencing their careers on a 5-point Likert scale. We coded participants as endorsing a positive factor if they reported it was a positive influence or strong positive influence towards primary care (4 or 5 on the Likert scale). We coded participants as endorsing a negative factor if they reported it was a negative or strong negative influence away from primary care (1 or 2 on the Likert scale). We then compared the distribution of endorsement of positive and negative factors in those with primary care versus non-primary care careers. We also conducted sensitivity analyses comparing frequency of endorsement of strong positive influences (5 on the Likert scale) and strong negative influences (1 on the Likert scale) in those with primary care versus non-primary care careers. We used Stata version 14 (StataCorp LLC; College Station, TX) for all analyses.

## RESULTS

From 2000 to 2015, 317 residents graduated from the primary care tracks within the UCSF internal medicine residency program—204 in UCPC and 113 in SFPC. We obtained contact information for 305 alumni (96%), and 172 responded to our survey for a 56% response rate. Of these 172 alumni, 54.6% reported current careers in primary care and 45.3% in non-primary care fields. Table 1 describes the demographic characteristics of primary care physicians and non-primary care physicians. Notably, women were more likely to choose primary care careers in both tracks. Both alumni in primary care and non-primary care fields spend significant clinical time with underserved populations (43.1%, 48.8%).

While 94% of primary care residency program alumni were interested in a primary care career prior to residency, 68% were interested at the conclusion of residency, and 55% currently practice primary care (Table 2). Among those practicing primary care, 61% said their continuity clinic experience positively influenced them towards their final career path (Table 3). Interpersonal factors, including patient-physician

**Table 1 Characteristics of Participants in Primary Care Versus Non-primary Care Careers**

	Primary care N=94	Non-primary care N=78	p value
Female*	69 (79.3%)	45 (64.3%)	.05
Race/ethnicity*			.28
White	45 (51.7%)	44 (62.9%)	
Black	4 (4.6%)	1 (1.4%)	
Asian	19 (21.8%)	18 (25.7%)	
Hispanic	11 (12.6%)	4 (5.7%)	
Mixed/other	8 (9.2%)	3 (4.3%)	
Debt*			.16
0–50K	38 (43.7%)	30 (42.9%)	
51–150K	22 (25.3%)	28 (40%)	
151–250K	22 (25.3%)	11 (15.7%)	
>250K	5 (5.8%)	1 (1.4%)	
Program			.06
UCPC	54 (57.5%)	56 (71.8%)	
SFPC	40 (42.6%)	22 (28.2%)	
Current primary clinical role			<.001
Outpatient generalist	91 (96.8%)	0	
Inpatient generalist	0	27 (34.6%)	
Subspecialist	0	28 (35.9%)	
Generalist fellow	3 (3.2%)	0	
Subspecialty fellow	0	1 (1.3%)	
Other	0	22 (28.2%)	
Academic appointment	53 (56.4%)	53 (68%)	.17
Enrolled in or completed fellowship	33 (35.1%)	46 (59%)	.002
Type of fellowship			<.001
Primary care	28 (84.9%)	14 (31.1%)	
Subspecialty	5 (15.2%)	31 (68.9%)	
Mean percent of overall time spent in:			
Outpatient clinical practice	52.9	15.2	<.001
Inpatient clinical practice	1.9	33.9	<.001
Teaching	11.8	14.5	0.32
Administration	14.3	14.9	0.85
Clinical/translational research	9.7	14.4	.22
Educational research/ curriculum devo.	3.0	3.7	.53
Basic science research	0	3.15	.06
Other	3.5	7.3	.17
Percent of clinical time: underserved populations	43.1	48.8	.38
Outpatient primary care	69.8	12.0	<.001
Inpatient hospitalist	6.7	34.4	<.001
Consulting subspecialist	2.8	28.9	<.001

\*Percentages calculated based on the 87 participants in primary care positions and 70 participants in non-primary care positions that responded to these survey items

relationship (86%), patient population (64%), and access to role models (69%), were the most commonly endorsed positive influences towards a career in primary care. These factors were reported more often by those currently in primary care jobs than by those in non-primary care fields (Table 3). The patient-physician relationship was the most commonly reported positive influence, endorsed by 95% of those in primary care and 76% of those in other fields.

Alumni in both groups reported that work-flow factors including availability of support staff (46%), clerical duties (60%), and documentation (45%) negatively influenced them away from primary care careers (Table 4). The proportion

**Table 2 Interest in Primary Care Over Time**

	Total N=172	Primary care N=94	Non- primary care N=78	p value
Interested in primary care prior to residency*	160 (94.1%)	88 (95.7%)	72 (92.3%)	.51
Interested in primary care at conclusion of residency	117 (68.0%)	88 (93.6%)	29 (37.2%)	<.001
Practicing primary care	94 (54.7%)	–		

\*Percentages calculated based on the 170 participants who answered that they were interested in primary care prior to residency and 172 who answered they were interested in primary care at conclusion of residents and currently practicing

endorsing these factors as negative influences was similar in those in primary care and non-primary care fields. Only time pressure to see patients quickly was statistically different between the group who remained in primary care (58%) and those who went into subspecialty practice (73%,  $p=0.05$ ) (Table 4). There were no statistically significant differences among the educational factors between the PC and non-PC groups (Appendix 2). Level and importance of resident debt did not differ in those pursuing primary care or non-primary care careers. We also reanalyzed our data comparing the proportion of those in PC versus non-PC careers who endorsed a factor as a strongly positive or strongly negative influence and noticed the same trends (Appendix 3).

## DISCUSSION

In this survey of 2000–2015 primary care track graduates, we found that nearly a third of primary care residents took another career path and opted for subspecialty fellowship, while only slightly more than half currently practice ambulatory primary care. Although this may represent career changes due to exposures to new clinical opportunities during residency training, further exploration of primary care residents' experiences is key in promoting retention. Moreover, students entering

**Table 3 Factors Influencing Towards a Career in Primary Care\***

	Total	Primary care N=94	Non- primary care N=78	p value
Overall continuity clinic experience (n=172)	79 (45.9%)	57 (60.6%)	22 (28.2%)	<.001
Patient-physician relationship (n=165)	142 (86.1%)	86 (94.5%)	56 (75.7%)	.001
Access to role models (n=166)	114 (68.7%)	73 (80.2%)	41 (54.7%)	.001
Patient population (n=166)	106 (63.9%)	68 (74.7%)	38 (50.7%)	.002
Curriculum (n=164)	100 (61.0%)	59 (66.3%)	41 (54.7%)	.13

**Table 4** Factors Influencing Away From a Career in Primary Care

	Total N=94	Primary care N=94	Non- primary care N=78	p value
Support staff availability (n=165)	75 (45.5%)	41 (45.6%)	34 (45.3%)	1.0
Clerical duties (n=166)	99 (59.6%)	56 (61.5%)	43 (57.3%)	.64
Documentation (n=164)	74 (45.1%)	40 (44.9%)	34 (45.3%)	1.0
Time pressure (n=166)	108 (65.1%)	53 (58.2%)	55 (73.3%)	.05

primary care residencies are a valuable resource given our country's increased primary care workforce need; therefore, understanding what factors could be modified to maintain interest in primary care are of the utmost importance. Interestingly, our data show that interpersonal relationship factors were the most important influences towards a career in primary care between those who remained in PC and those who did not. Simultaneously, time pressure to see patients was the only negative factor endorsed significantly more often by those who choose a non-PC career. In contrast, clerical duties, documentation, and availability of support staff were reported as negative factors by a similar proportion of those who remained in PC and those who did not. Specifically, alumni who are currently practicing primary care reported both the overall clinic experience and relational factors (connections with patients and role models) as positive influences towards a career in primary care. The importance of these interpersonal factors remained influential towards a primary-care career despite reported clinical frustrations such as time pressure, clerical, or documentation demands.

The attrition noted during residency could be due to many factors. Similar to previous research, more than twice as many alumni in this study who were currently practicing primary care reported having a positive experience in their continuity clinic (61% versus 28%) compared to those who left primary care. This finding demonstrates that ensuring residents have meaningful clinic experiences facilitates retention of alumni in primary care practice. As legislation like the "EMPOWER Act<sup>4</sup>" passes in Congress and offers funding to support primary care training, residency programs should aim to create positive ambulatory experiences which include opportunities to connect with role models and attract residents motivated by patient relationships to grow a strong primary care workforce.

Furthermore, the predominance of inpatient experience during residency training is in contrast with the reality of the current practice of primary care general internal medicine which is occurring mostly in the ambulatory setting.<sup>12</sup> While the Accreditation Council for Graduate Medical Education has established ambulatory requirements,<sup>13</sup> the tipped balance in favor of inpatient training leads to varied compliance by residency programs and often more fragmented ambulatory experiences.<sup>14</sup> There have been innovative programmatic changes to support ambulatory education and increase

consistent exposure to outpatient medicine including alternating outpatient and inpatient blocks,<sup>15, 16</sup> separating a week of outpatient during inpatient months,<sup>17</sup> and working in full-spectrum, interdisciplinary clinics such as patient-centered medical homes.<sup>18</sup> In 2010, UCSF implemented an every other month alternating inpatient/ambulatory block month scheduling system for all residents. Similar to another program, our resident internal reviews report increased satisfaction with their learning environment and clinic-based patient relationships over that time.<sup>16</sup> However, our current survey data did not show a temporal change in the number of PC residents who remain in primary care practice from before to after our scheduling change. Further study will be needed to assess long-term outcomes of these types of PC innovations.

Similarly, there are reasons for the protective nature of the interpersonal factors in maintaining interest in primary care. For many medical students, the prospect of longitudinal relationships with patients drives them to primary care residencies.<sup>19</sup> Our study shows that positive reinforcement from patients and role models in residency encourages a primary care career. While the administrative factors of charting or clerical duties detract from the overall primary care clinic experience, time in the precepting room with mentors or connections with patients in the exam room may overcome these negative factors. Identifying and consistently meeting with mentors has been shown to improve professional identity and clinic experience for faculty,<sup>20-22</sup> and enhancing these relationships during protected time in residency for mentorship by PC role models may improve retention to primary care careers. Finally, promoting the power of the longitudinal professional interpersonal relationship with patients for trainees may be the key factor in keeping residents in PC.

This study has several limitations. First, it examines alumni from a single academic center and may not be generalizable to other PC residencies. Second, we collected cross-sectional data and generated associations but cannot prove any causal relationships. Third, our data covers a 15-year time frame during which innovations and changes occurred within each training track that may have influenced our results. For example, the exponential growth of hospital medicine likely affected the number of residents currently in outpatient primary care. Importantly, we did not see any temporal trends in rates of alumni leaving primary care careers over the 15 years of survey data collected, which should minimize this risk. Fourth, the outcomes were self-reported, and allow for the potential that participants in PC tracks might overemphasize their interest in a PC career before or after completion of residency or are underestimating their retrospective interest in PC. The responses may have also been influenced by current attitudes towards PC. The confidential nature of our survey should minimize this risk.

This study did not include a thematic analysis of the comments at the end of each question addressing the factors that influenced participants towards or away from primary care. Similarly, we did not address assessment of skills or

competencies of PC residents at the end of their training. Future studies could include deeper qualitative assessments, such as focus groups or individual interviews of PC alumni about their ambulatory clinic experience.

Alumni who responded to our survey reported a high rate of attrition away from PC careers among residents initially interested in pursuing a career in primary care. The overall clinic experience and interpersonal factors such as patient population, patient-physician relationships, and interaction with role models were most often rated as positive influences towards a PC career. These factors seem to indicate that alumni who stay in primary care may be less influenced by the burdens of clinic and place more importance on their relationships with patients and role models. Enhancing patient and mentor relationships and improving support for administrative tasks may increase the retention of PC residents to an outpatient career and may help address the current and projected shortage of PCPs.

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