

Resident Satisfaction with Continuity Clinic and Career Choice in General Internal Medicine

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BACKGROUND: The quality of the continuity clinic experience for internal medicine (IM) residents may influence their choice to enter general internal medicine (GIM), yet few data exist to support this hypothesis.

OBJECTIVE: To assess the relationship between IM residents' satisfaction with continuity clinic and interest in GIM careers.

DESIGN: Cross-sectional survey assessing satisfaction with elements of continuity clinic and residents' likelihood of career choice in GIM.

PARTICIPANTS: IM residents at three urban medical centers.

MAIN MEASURES: Bivariate and multivariate associations between satisfaction with 32 elements of outpatient clinic in 6 domains (clinical preceptors, educational environment, ancillary staff, time management, administrative, personal experience) and likelihood of considering a GIM career.

KEY RESULTS: Of the 225 (90 %) residents who completed surveys, 48 % planned to enter GIM before beginning their continuity clinic, whereas only 38 % did as a result of continuity clinic. Comparing residents' likelihood to enter GIM as a result of clinic to likelihood to enter a career in GIM before clinic showed that 59 % of residents had no difference in likelihood, 28 % reported a lower likelihood as a result of clinic, and 11 % reported higher likelihood as a result of clinic. Most residents were very satisfied or satisfied with all clinic elements. Significantly more residents ($p \leq 0.002$) were likely vs. unlikely to enter GIM if they were very satisfied with faculty mentorship (76 % vs. 53 %), time for appointments (28 % vs. 11 %), number of patients seen (33 % vs. 15 %), personal reward from work (51 % vs. 23 %), relationship with patients (64 % vs. 42 %), and continuity with patients (57 % vs. 33 %). In the multivariate analysis, being likely to enter GIM before clinic (OR 29.0, 95 % CI 24.0–34.8) and being very satisfied with the continuity of relationships with patients (OR 4.08, 95 % CI 2.50–6.64) were the strongest independent predictors of likelihood to enter GIM as a result of clinic.

CONCLUSIONS: Resident satisfaction with most aspects of continuity clinic was high; yet, continuity clinic had an overall negative influence on residents' attitudes toward GIM careers. Targeting resources toward improving ambulatory patient continuity, workflow efficiency and increasing pre-residency interest in primary care may help build the primary care workforce.

KEY WORDS: medical education—career choice; medical education—graduate; primary care; ambulatory medicine.

J Gen Intern Med 28(8):1020–7

DOI: 10.1007/s11606-012-2280-5

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INTRODUCTION

The US faces a critical shortage in the primary care workforce, which will soon be inadequate to meet the needs of the aging US population.^{1,2} Trends in medical student and resident career choices over the last decade offer little optimism that this shortage can be avoided.^{2–6} From 1997 to 2006, the number of US medical school graduates likely to pursue primary care residencies (family medicine, general medicine, general pediatrics) declined from 43.5 % to 20.2%,⁵ and from 2002 to 2007 the number of US resident physicians intending to practice primary care decreased from 28.1 % to 23.8 %.³ Internal medicine (IM) residency programs train one-fourth of all residents⁷ but are producing fewer graduates pursuing primary care careers. From 1998 to 2006, the number of US medical school graduates intending to pursue general internal medicine (GIM) decreased from 15.7 % to 6.7 %,⁵ and from 1998 to 2003 the proportion of IM residents planning to enter GIM declined from 54 % to 27 %.⁴

Many believe that dissatisfaction with the continuity clinic experience may discourage trainees from selecting primary care careers.^{8–11} The challenges residents face during their continuity clinics include lack of continuity

with patients, burdensome administrative duties, lack of support for coordination of care and disease management, staffing shortages, distraction from inpatient duties, and dissatisfied primary care role models, all against the backdrop of managing patient panels full of medically and socially complex patients.^{8–11} In an effort to improve the ambulatory continuity experience, several important stakeholders in IM have called for reform.^{7, 12–14} Specifically, in 2009, the ACGME IM Residency Review Committee required IM residents to have 130 ambulatory half-day sessions over 3 years, up from 108 in 2004, and mandated decreased conflict between ambulatory and inpatient experiences and improved coordination of care and mentorship in clinic.^{7, 9} While these efforts were, in part, motivated by the primary care workforce crisis, it is not clear whether changes to the ambulatory care experience will actually impact career choices of IM residents.

The goals of this study were to assess resident satisfaction with continuity clinic and the association of the resident clinic experience with resident attitudes toward careers in GIM. We hypothesized that IM residents' satisfaction with many elements of continuity clinic would be low, that the continuity clinic experience would influence residents away from GIM careers, and that high resident satisfaction with continuity clinic would be associated with a higher self-reported likelihood of pursuing a GIM career.

METHODS

Study Design and Setting

We administered a survey at two tertiary care hospital centers, Mount Sinai School of Medicine (MSSM) in New York City, NY, and Temple University School of Medicine (TUSM) in Philadelphia, PA, between April and July 2010, and at one community hospital, Johns Hopkins Bayview Medical Center (JHBMC) in Baltimore, MD, between May and July 2011. The programs were selected as a result of collaboration at a regional SGIM meeting. The IM residency programs at these institutions had similar team-based, ambulatory clinic structures and all programs had primary care programs within their categorical program. The study was approved by the Institutional Review Boards at all three institutions.

Participants

All IM residents at the three institutions who had continuity clinic were eligible to participate in the study (e.g., categorical and primary care residents were included, preliminary year interns were not). At MSSM and JHBMC, residents were recruited in person at conferences

and completed paper surveys. At TUSM, residents were recruited via email and completed Internet-based surveys (SurveyMonkey). The survey took approximately 10 min to complete. All data were de-identified and aggregated.

Survey Design and Domain Structure

The survey was adapted from the Veterans Affairs (VA) Learner's Perception Survey (LPS), which had been previously modified for the continuity clinic experience^{15, 16} and has been used in other studies, including the Accreditation Council for Graduate Medical Education (ACGME)-sponsored Educational Innovations Project.^{17, 18} The Continuity Clinic LPS asks residents to use a five-item Likert scale to rate their satisfaction with 35 elements of clinic in five domains: (1) clinical preceptors; (2) learning environment; (3) working environment; (4) clinical environment; (5) personal environment.^{15, 16} We conducted principle components analysis on a subset of the data, which resulted in dropping 3 items because of redundancy and adding an additional domain, making a 32-item survey with 6 domains (Table 3), which demonstrated content validity based on the available literature.^{15, 16, 19–24} The final domains and their Cronbach alpha scores are (1) clinical preceptors (0.866), (2) educational environment (0.763), (3) ancillary staff (0.600), (4) time management (0.878), (5) administrative: records/space (0.708), and (6) personal experience (0.853). Although ancillary staff had a lower than typically acceptable Cronbach's alpha, we kept this domain because the grouping intuitively made sense (front desk, nursing and medical assistant staff) and because we did not use the domains to create scores.

In addition to the satisfaction questions, we included two questions asking residents to rate their likelihood "to enter a career in GIM" across a four-point Likert scale: (1) "BEFORE the continuity clinic experience" and (2) "AS A RESULT of the continuity clinic experience." Our modified survey also included questions regarding gender, postgraduate year, training site, work plan, and practice setting plan.

Statistical Analysis

Demographic and career plan responses were compared across sites using chi-square analysis. Individual satisfaction item responses were skewed toward *very satisfied*, so we dichotomized responses for these items for analysis into *very satisfied* (very satisfied response only) and *not very satisfied* (somewhat satisfied, somewhat dissatisfied, and very dissatisfied).²⁵ Choice of a career in GIM was dichotomized as somewhat or very likely versus somewhat or very unlikely, and "before clinic" and "as a result of clinic" responses were compared using the chi-square test.

In addition, we calculated the overall number of residents whose likelihood of entering GIM as a result of the clinic experience was more, less, or unchanged compared to before the clinic experience and compared residents' likelihood of entering GIM before versus as a result of clinic using the Wilcoxon rank sum test. We examined associations between satisfaction with clinic elements and consideration of a career in GIM using the chi-square test. We applied a Bonferroni correction to these association analyses to account for multiple comparisons.

A Generalized Estimating Equation (GEE) model (to account for the population effect of the three unique study sites) was used to examine the association between elements on the satisfaction survey and GIM career plans as a result of the clinic experience, adjusting for demographic characteristics (gender, postgraduate year) and residents' baseline interest in a GIM career.²² The selection of variables to include in the model used the following strategy based on the bivariate analysis.^{25, 26} In domains in which only one item was significantly associated with career choice, that item was used. In domains in which more than one item showed a significant association, the model item was chosen based on previous knowledge about the importance of the item for clinic satisfaction and the modifiability of the item (i.e., continuity with patients is modifiable, reward from work is not). In domains in which no items had a significant association, the item that showed the strongest trend toward an association was used in the model. Iterative sensitivity analyses substituting multiple different items for each domain verified stability of the model. All analyses were completed using Statistical Program for the Social Sciences version 18.

RESULTS

A total of 225 residents completed the survey for an overall 90 % response rate (MSSM, 84 %; TUSM, 93 %; JHBMC, 98 %). Residents were evenly distributed by gender, site, and postgraduate year. There were differences in career plans by site. For example, more residents at MSSM planned to pursue careers in academic medicine and a larger percentage of JHBMC residents planned to enter a GIM career before the continuity experience (Table 1).

Likelihood of Entering a Career in GIM

Overall, 48 % of residents reported that prior to beginning their residency training they intended to enter a career in GIM. However, 38 % reported being likely to enter a career in GIM as a result of clinic ($p=0.003$). Comparing residents' likelihood to enter GIM as a result of clinic to likelihood to enter a career in GIM before clinic showed that 59 % of residents had no difference in likelihood, 28 %

Table 1. Resident Characteristics

Characteristics	Total N (%)	MSSM n (%)	TUSM n (%)	JHBMC n (%)	p value
All	225 (100)	93 (41)	90 (40)	42 (19)	
Female	112 (50)	45 (48)	45 (50)	22 (52)	0.91
Postgraduate Year					
1	66 (29)	31 (33)	21 (23)	14 (33)	0.54
2	84 (37)	35 (38)	35 (39)	14 (33)	
3	75 (33)	27 (29)	34 (38)	14 (33)	
Practice setting plan*					
Academic	184 (82)	85 (91)	69 (77)	30 (71)	0.006
Community	28 (12)	7 (8)	17 (19)	4 (10)	0.05
Private	53 (24)	15 (16)	32 (36)	6 (14)	0.002
Type of work plan*					
Clinical	210 (93)	88 (95)	83 (92)	39 (93)	0.80
Education	102 (45)	47 (51)	38 (42)	17 (41)	0.41
Research	77 (34)	42 (45)	16 (18)	19 (45)	<0.001
Health policy/ public health	43 (19)	13 (14)	16 (18)	14 (33)	0.02
Likely to consider employment in GIM BEFORE clinic experience	107 (48)	40 (43)	37 (41)	30 (71)	0.003

Differences calculated using chi-square test

**Respondents could select >1 choice for this question so percentages may be >100 %*

reported a lower likelihood as a result of clinic, and 11 % reported higher likelihood as a result of clinic.

In the bivariate analysis of demographics, female vs. male residents (46 % vs. 31 %, $p=0.03$) and JHBMC residents ($p<0.001$) were more likely to consider entering GIM as a result of clinic (Table 2).

Resident Satisfaction with Elements of Clinic

Residents reported high levels of satisfaction for nearly all elements of clinic. On average, 83 % were *somewhat*

Table 2. Demographics by Self-reported Likelihood of Entering GIM AS A RESULT of Clinic

Demographics	Likely to enter GIM n=86 n (%)	Unlikely to enter GIM n=139 n (%)	p value
Overall	38.2 %	61.8 %	
Female	51 (46)	61 (54)	0.03
Male	35 (31)	78 (69)	
Postgraduate year			
1	24 (36)	42 (64)	0.79
2	31 (37)	53 (63)	
3	31(41)	44 (59)	
Training site			
MSSM	23 (25)	70 (75)	0.001
TUSM	38 (42)	52 (58)	
JHBMC	25 (60)	17 (40)	
Likely to consider employment in GIM BEFORE clinic	72 (67)	35 (33)	0.001

Differences calculated using chi-square test

satisfied (39.5 %) or *very satisfied* (43.2 %) across all 32 elements. Highest ratings were given for the clinic preceptor domain (96 % *somewhat satisfied* or *very satisfied*) and lowest for time management (66 % *somewhat satisfied* or *very satisfied*) (Fig. 1).

Association of Clinic Experience with Likelihood of Entering a Career In General Internal Medicine

In the bivariate analyses, those who reported being likely to enter a career in GIM as a result of clinic reported significantly higher rates of being *very satisfied* with 6 of the 32 clinical elements when compared to those who were unlikely to enter a GIM career as a result of clinic (there were no elements for which they reported lower satisfaction). These included personal reward from work, the relationship with patients, and the continuity of the relationship with patients in the personal experience domain, number of clinic patients seen, and time allotted to see patients in the time management domain and mentorship from faculty in the clinical preceptor domain (Table 3).

In the multivariate GEE model, residents who were *very satisfied* with the continuity of relationships with their patients (OR 4.08, 95 % CI 2.50–6.64), the number of clinic patients seen (OR 2.40, 95 % CI 1.42–4.05), and who had intended to enter GIM prior to beginning residency clinic (OR 29.0, 95 % CI 24.0–34.8) were more likely to consider a career in GIM based on their outpatient clinical experience (Table 4). Gender and postgraduate year were not associated with intention to enter GIM in the adjusted model. These results were consistent across the sensitivity analyses described in the methods.

DISCUSSION

In this study of 225 IM residents from three academic training programs in different cities and clinical settings, most residents were satisfied with nearly all elements of their continuity clinic but overall were less likely to enter a GIM career as a result of clinic experience. Most importantly, we found that satisfaction with two elements of clinic, the number of patients seen and continuity of care with patients, was associated with residents' likelihood of choosing GIM careers.

Surprisingly, we found very high levels of resident satisfaction with most elements of clinic studied in our survey. While one study showed similarly high satisfaction with clinic,¹⁹ many have shown that residents frequently feel stressed or overwhelmed by clinic,⁹ do not value it as highly as other training experiences (e.g., ICU and

wards),¹⁹ and do not feel prepared to enter outpatient practice.^{9, 27, 28} One explanation for this dichotomy is that our study only addressed certain elements of clinic. Factors we did not study, such as patient no-show rates, lack of clinic resources, resident personality characteristics, and overall feelings of stress and/or burnout as well as known influences such as potential monetary compensation,^{21, 22, 29} greater comfort with the inpatient setting, and attraction to a specific specialty¹⁰ may contribute to the stress and devaluing of ambulatory training.

Despite being relatively satisfied with their clinic experience, 28 % of respondents were less likely to enter GIM as a result of their clinic experience, while only 11 % were more likely to enter a career in GIM as a result of clinic. A study of medical students exposed to an IM outpatient experience reported that equal numbers of students felt that the experience made a career in GIM more (32.1 %) or less attractive (33.0 %).¹⁰ The clinic experience does seem to influence some trainees' career choices, and in our study population more were driven away from a primary care career. Ultimately, some elements of the clinic experience may drive a trainee toward one career path or another.

Our study found that resident satisfaction with the number of clinic patients seen in the time management domain and continuity of relationships with patients in the personal experience domain demonstrated associations with a GIM career choice. Our findings are corroborated by a similar smaller study that found an association between workflow and professional/personal satisfaction and choice of GIM.¹¹ Collectively, these results demonstrate potential areas in which to focus efforts on improving the resident ambulatory clinic experience that may sway IM residents in the direction of primary care careers. Time management issues, such as the number of patients on their schedule, time allotted for patient care, and workflow issues, may adversely affect residents' perception of a future GIM career. Efforts to improve these aspects of clinic by training residents in time management, increasing the time allotted for patient visits, minimizing inpatient interruptions, and decreasing inpatient/outpatient session overlap may improve residents' perceptions of primary care careers. Moreover, the associations of residents' satisfaction with continuity of relationships with patients and personal reward from work and consideration of a GIM career suggest that program and clinic directors should work to achieve real longitudinal relationships for residents and their patients. This has been a challenging problem in most resident clinics, but recent innovations such as the ambulatory long block and the "4+1" system of inpatient to ambulatory rotations may improve continuity.^{18, 30}

Of note, other studies have shown associations with gender and years in training and a generalist career.^{31, 32}

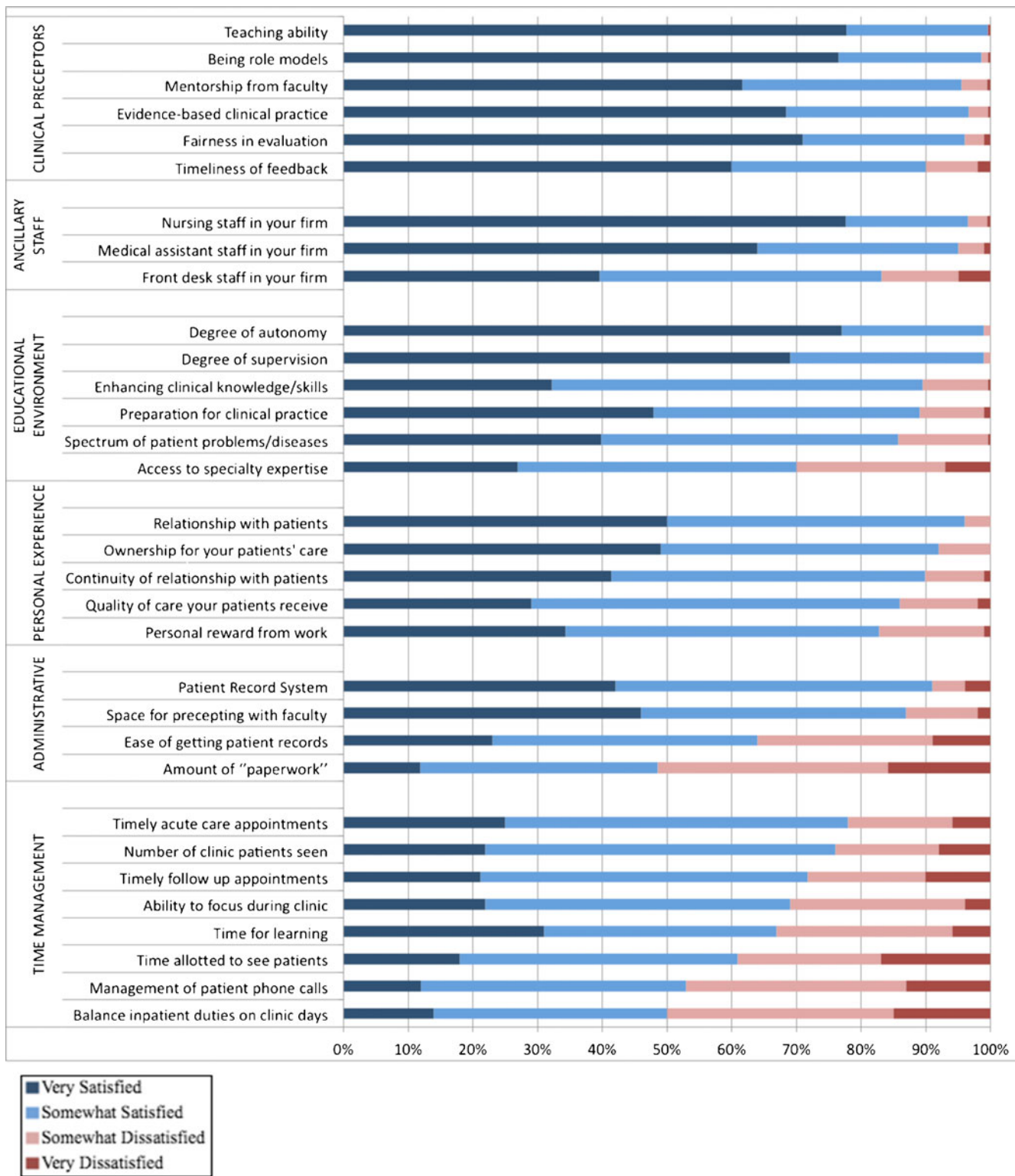


Figure 1. Residents reported satisfaction with elements of clinic.

Our unadjusted model demonstrated the association with gender and GIM career choice, but the relationship was not evident in the adjusted model. This may be explained in part by the model's adjustment for site and desire to enter

GIM before the clinic experience, but may also relate to factors specific to the sites in this study.

Another important finding of this study is that, for a majority of residents, being likely to enter GIM before clinic was by far

Table 3. Percentage of Residents Very Satisfied with Clinic Element by Self-reported Likelihood of Entering GIM AS A RESULT of Clinic

Clinic domains and elements (n=225)	Percent of residents very satisfied		p value
	Likely to Enter GIM	Unlikely to Enter GIM	
	n (%)	n (%)	
	n=86	n=139	
Clinical preceptors			
Teaching ability	70 (82)	104 (75)	0.22
Timeliness of feedback	54 (66)	78 (57)	0.21
Fairness in evaluation	60 (77)	87 (67)	0.14
Being role models	73 (87)	96 (70)	0.004
Evidence-based clinical practice	66 (78)	86 (62)	0.01
Mentorship from faculty	64 (76)	72 (53)	0.001*
Educational environment			
Degree of supervision	59 (69)	96 (69)	0.96
Preparation for clinical practice	46 (54)	61 (44)	0.14
Access to specialty expertise	29 (34)	106 (23)	0.06
Spectrum of patient problems/diseases	40 (47)	49 (35)	0.08
Degree of autonomy	73 (86)	101 (73)	0.02
Enhancement of your clinical knowledge/skills	36 (43)	35 (25)	0.005
Ancillary staff			
Front desk staff in your firm	34 (40)	55 (40)	0.95
Nursing staff in your firm	64 (78)	106 (78)	0.98
Medical assistant staff in your firm	53 (64)	87 (63)	0.90
Time management			
Number of clinic patients seen	28 (33)	20 (15)	0.001*
Time allotted to see patients	24 (28)	15 (11)	0.001*
Timely availability of follow-up appointments	24 (29)	22 (16)	0.02
Timely availability of acute care appointments	29 (35)	27 (20)	0.01
Ability to focus during clinic	27 (32)	23 (16)	0.007
Ability to balance ward/inpatient duties on clinic days	16 (19)	16 (11)	0.12
Time for learning	34 (40)	36 (26)	0.03
Management of patient phone calls	13 (16)	14 (10)	0.24
Administrative: records/space			
Ease of getting patient records	19 (22)	32 (23)	0.91
Amount of "paperwork"	11 (13)	14 (10)	0.51
Patient record system	37 (44)	57 (41)	0.66
Space for precepting with faculty	47 (55)	57 (41)	0.04
Personal experience			
Personal reward from work	43 (51)	32 (23)	<0.001*
Relationship with patients	54 (64)	59 (42)	0.002*
Continuity of relationship with patients	48 (57)	45 (33)	<0.001*
Ownership/personal responsibility for patients' care	52 (62)	58 (42)	0.004
Quality of care your patients receive	30 (35)	34 (24)	0.08

Differences calculated using chi-square test. * Significant at p≤0.002 by Bonferonni correction

Table 4. Adjusted Odds Ratios of Resident Self-reported Likelihood of Entering GIM AS A RESULT of Clinic across sites

Clinic elements	GEE: adjusted odds ratio (95 % CI)	p value
Very satisfied with clinic element:		
Preceptors as mentors	1.07 (0.28–4.13)	0.92
Enhancement of clinical knowledge/skills	1.22 (0.93–1.60)	0.14
Medical assistant staff in your firm	1.11 (0.36–3.46)	0.85
Number of clinic patients seen	2.40 (1.42–4.05)	0.001
Space for precepting with faculty	1.11 (0.60–2.05)	0.75
Continuity of relationships with patients	4.08 (2.50–6.64)	0.001
Demographic characteristics		
Female gender	1.48 (0.66–3.35)	0.34
Postgraduate year		
2	0.85 (0.23–3.14)	0.80
3	0.50 (0.19–1.32)	0.16
Likely to consider employment in GIM BEFORE clinic experience	29.0 (24.0–34.8)	0.001

Calculated using a Generalized Estimating Equation across sites

the strongest predictor of the likelihood of entering GIM. This finding highlights the importance of attracting physician trainees to primary care before and during medical school. One potential strategy to attract trainees early is via primary care tracks in residency, which have been shown to produce higher proportions of primary care internists than traditional categorical residencies.^{36,37} We were unable to study this effect because the small numbers of primary care residents in our programs would not allow for subgroup analysis. Another important strategy is to recruit more medical students into primary care. Fewer medical students are choosing primary care careers, probably because of the lack of financial incentives, an unappealing practice environment (e.g., large workload and short appointment length), and patient characteristics (e.g., multiple social issues).^{6,22,33} Medical students have reported that they would be more likely to enter primary care if they had increased ambulatory care experiences, more longitudinal relationships with patients, better GIM attending-student interaction, and higher salaries in primary care.^{22,34} US medical schools have begun to implement changes,^{35–39} such as primary care tracks, longitudinal ambulatory experiences, and preceptorships, but the impact on trainee career choice is not yet clear.

Our study has a number of important limitations. The percentage of residents reporting a likelihood of entering GIM (48 %) in our study is higher than the nationally reported numbers of approximately 20–27 %.^{2–8} Because percentages were high at all three sites, which are diverse in the housestaff they attract and their educational mission, the discrepancy seems most likely a result of the way the question was asked (likely to consider) and the answer phrasing (somewhat/very likely). Residents may also overestimate the likelihood that

they would pursue a career in GIM before clinic, and the likelihood to pursue a career in GIM as a result of clinic may not correlate with actual career trajectory. We used a retrospective pre-post response as the outcome, limiting our ability to attribute a cause-and-effect relationship to our predictors and outcome and introducing possible recall bias. However, our survey contained a question that assessed baseline interest in a GIM career to control for an individual resident's pre-clinic proclivity toward GIM. In addition, the wording of the outcome variable "as a result of" encouraged residents to consider whether their desire to go into GIM was attributable to the clinic experience, allowing us to better assess the impact of the clinic experience itself.

Concerns about ambulatory training of IM residents have led to increased scrutiny and regulatory efforts. Our study identified several areas of low resident satisfaction as well as features of the clinic experience that may lead residents to consider a career in GIM. We also found that interest in GIM that precedes residency training is associated with greater likelihood of entering a GIM career down the road. Targeting resources toward improving clinical elements such as patient continuity and workflow efficiency, which are associated with a higher likelihood of entering a primary care career, and increasing medical student interest in primary care may help build the primary care workforce.

Contributors: Deborah Korenstein, M.D.

Funding: There were no sources of funding for this study.

Prior Presentations: This work was presented as oral presentations at the National SGIM meetings in May 2011 and May 2012 as well as poster presentations at Regional SGIM in March 2011 and Mount Sinai Educational Research Day in April 2011.

Conflict of Interest: The authors declare that they do not have a conflict of interest.

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