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General Medicine vs Subspecialty Career Plans Among Internal Medicine Residents

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GENERAL INTERNISTS PROVIDE comprehensive and coordinated care for both acute and chronic diseases. General internists are expected to play an increasingly critical role in health care provision as the population ages, the burden of chronic disease grows, and health care reform targets coverage of tens of millions of currently uninsured patients.¹⁻⁶ The value of generalist care is well documented.¹⁻⁷

With the increasing understanding that the United States faces a severe shortage of generalist physicians,¹⁻⁶ the composition of the medical workforce has become a more prominent concern. In the 1970s, internal medicine primary care programs were created to stimulate increased training in general medicine.⁸ Early studies reported general medical career plans for up to 90% of primary care program graduates.⁸⁻¹¹ However, these results came in an environment in which more than half of all internal medicine residency graduates pursued general medical careers.¹⁰ More recently, only 20% to 25% of internal medicine residency graduates pursue general medical careers,^{12,13} and fewer medical students are

Context Current medical training models in the United States are unlikely to produce sufficient numbers of general internists and primary care physicians. Differences in general internal medicine (GIM) career plans between internal medicine residency program types and across resident demographics are not well understood.

Objective To evaluate the general medicine career plans of internal medicine residents and how career plans evolve during training.

Design, Setting, and Participants A study of US internal medicine residents using an annual survey linked to the Internal Medicine In-Training Examination taken in October of 2009-2011 to evaluate career plans by training program, sex, and medical school location. Of 67 207 US eligible categorical and primary care internal medicine residents, 57 087 (84.9%) completed and returned the survey. Demographic data provided by the National Board of Medical Examiners were available for 52 035 (77.4%) of these residents, of whom 51 390 (76.5%) responded to all survey items and an additional 645 (1.0%) responded to at least 1 survey item. Data were analyzed from the 16 781 third-year residents (32.2%) in this sample.

Main Outcome Measures Self-reported ultimate career plans of internal medicine residents.

Results A GIM career plan was reported by 3605 graduating residents (21.5%). A total of 562 primary care program (39.6%) and 3043 categorical (19.9%) residents reported GIM as their ultimate career plan (adjusted odds ratio [AOR], 2.76; 99% CI, 2.35-3.23; $P < .001$). Conversely, 10 008 categorical (65.3%) and 745 primary care program (52.5%) residents reported a subspecialty career plan (AOR, 1.90; 99% CI, 1.62-2.23; $P < .001$). GIM career plans were reported more frequently by women than men (26.7% vs 17.3%, respectively; AOR, 1.69; 99% CI, 1.53-1.87; $P < .001$). US medical graduates were slightly more likely to report GIM career plans than international medical graduates (22.0% vs 21.1%, respectively; AOR, 1.76; 99% CI, 1.50-2.06; $P < .001$). Within primary care programs, US medical graduates were much more likely to report GIM career plans than international medical graduates (57.3% vs 27.3%, respectively; AOR, 3.48; 99% CI, 2.58-4.70; $P < .001$). Compared with their counterparts, maintaining a first-year GIM career plan over the course of their training was more likely among primary care program residents (68.2% vs 52.3%; AOR, 1.81; 99% CI, 1.25-2.64; $P < .001$), women (62.4% vs 47.2%; AOR, 1.75; 99% CI, 1.34-2.29; $P < .001$), and US medical graduates (60.9% vs 49.2%; AOR, 1.48; 99% CI, 1.13-1.93; $P < .001$).

Conclusion Reported GIM career plans were markedly less common than subspecialty career plans among internal medicine residents, including those in primary care training programs, and differed according to resident sex, medical school location, and program type.

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interested in general medicine and primary care.¹⁴

In the current environment, it is unclear to what degree primary care training program graduates continue to favor general medical careers. It is also unclear how these career plans may differ across sociodemographic factors such as resident sex or medical school location (United States vs international). In addition, the stability of general medicine career decisions within training programs and across sociodemographic factors is unknown.¹⁵ To address these issues, we used an annual survey of a large national cohort of internal medicine residents to evaluate career plans by training program, sex, and medical school location.

METHODS

The Internal Medicine In-Training Examination (IM-ITE) is a standardized examination developed by a committee of the American College of Physicians. The examination is intended to serve as a self-assessment of medical knowledge by internal medicine residents. The IM-ITE is developed to target the expected knowledge of postgraduate year 2 residents, but residents at all levels of training participate in the examination on an annual basis.¹⁶ The IM-ITE is administered every October at more than 400 residency programs. Nearly 100% of internal medicine residency programs accredited by the Accreditation Council for Graduate Medical Education participate annually.⁹

After completing the IM-ITE, residents are asked to voluntarily complete a brief survey that is submitted along with their test booklet (eAppendix, available at <http://www.jama.com>). Survey questions are selected by the IM-ITE steering committee to better understand trainee perceptions of the training environment, learning methods, and career trajectories. Resident responses can be tracked confidentially using a unique examination identification number assigned to each examinee. Survey questions pertaining to ultimate intended career plans di-

vide responses into 15 categories: general internal medicine (GIM), hospitalist, subspecialty (cardiology, gastroenterology, pulmonary/critical care medicine, nephrology, hematology/oncology, infectious disease, endocrinology, rheumatology, geriatrics, other, and undecided subspecialty), non-internal medicine, and undecided (eAppendix). The IM-ITE survey responses are then linked to National Board of Medical Examiners records to allow analysis of demographic factors such as sex and medical school location.

Categorical internal medicine residency programs are the more common traditional training programs for internal medicine. Primary care programs provide increased emphasis on training and education in ambulatory care settings. Both are 3-year training experiences. Categorical and primary care internal medicine residents who participated in this voluntary survey on completion of the IM-ITE in 2009-2011 form the primary study sample. In addition, the subset of residents from this group who completed surveys in both the first and last of their 3 years of training was evaluated, using postgraduate year 1 (PGY-1) IM-ITE data from 2007, 2008, and 2009 for postgraduate year 3 (PGY-3) residents in 2009, 2010, and 2011, respectively. Career plans reported by PGY-1 residents were compared with what these same residents reported in PGY-3. Differences in career choice and changes in career plan by training program, sex, and medical school location were evaluated.

In addition to descriptive results, we performed multivariable logistic regression to analyze the likelihood of reporting a general medicine career plan adjusting for program type, sex, medical school location, and year of graduation. These analyses included all 2-way interactions. Because of the large sample size and to adjust for multiple comparison issues, statistical significance was set at 2-sided $\alpha = .01$. All analyses were performed by using SAS version 9.2 (SAS Institute Inc). This analysis

and waiver of informed consent was approved by the Mayo Clinic Institutional Review Board.

RESULTS

Survey Sample

In total, 57 087 of 67 207 US internal medicine residents (84.9%) in PGY-1 to PGY-3^{17,18} (written communication, Sarah E. Brotherton, PhD, American Medical Association, May 2012) completed the IM-ITE and returned surveys in October of 2009-2011. Of these residents, demographic data provided by the National Board of Medical Examiners were available for 52 035 residents (77.4%) in US categorical and primary care training programs, of whom 51 390 (76.5%) responded to all survey items and an additional 645 (1.0%) responded to at least 1 survey item in the current study.¹⁹ We analyzed data from the 16 781 PGY-3 residents (32.2%) in this sample, a proportion closely matching the proportion of PGY-3 internal medicine residents in training in recent years.²⁰

PGY-3 Career Plans

Demographic characteristics and reported career plans of the 2009, 2010, and 2011 graduating PGY-3 resident sample are shown in TABLE 1. Sex and medical school location proportions closely matched available national demographic data for internal medicine residents.^{17,18} As shown in TABLE 2, primary care program residents were more likely than categorical residents to report a GIM career plan (39.6% vs 19.9%, respectively; adjusted odds ratio (AOR), 2.76; 99% CI, 2.35-3.23; $P < .001$). Conversely, 10 008 categorical (65.3%) and 745 primary care program (52.5%) residents reported a subspecialty career plan (AOR, 1.90; 99% CI, 1.62-2.23; $P < .001$). Women were more likely than men to report a GIM career plan (26.7% vs 17.3%, respectively; AOR, 1.69; 99% CI, 1.53-1.87; $P < .001$) (Table 2).

Unadjusted GIM career plan rates were similar for US and international medical graduates (22.0% vs 21.1%, respectively; crude OR, 1.06; 99% CI,

0.96-1.17; $P = .13$). However, in the adjusted models, US medical graduates were more likely than international medical graduates to report a GIM career plan (AOR, 1.76; 99% CI, 1.50-2.06; $P < .001$) (Table 2). This result was driven by a strong interaction between program type and medical school location (TABLE 3). Among categorical residents, GIM career plan differences between US and international medical graduates were small (19.3% vs 20.4%, respectively; AOR, 1.11; 99% CI, 0.998-1.23; $P = .01$). However, among primary care program residents, US medical graduates were markedly more likely to report a GIM career plan (57.3% vs 27.3%, respectively; AOR, 3.48; 99% CI, 2.58-4.70; $P < .001$).

PGY-1 Career Plans

Career plan information for both the first and last years of training was provided by 10 591 residents (TABLE 4 and eTable). Demographics and PGY-3 career plans of this subset were comparable with those of the full sample of 16 781 PGY-3 residents. Only 14.9% of the PGY-1 residents in this subset reported a GIM career plan, compared with 21.6% by PGY-3 residents.

Reported GIM career plans of PGY-1 residents differed across program type, sex, and medical school location in a pattern similar to that observed among PGY-3 residents, although all PGY-1 GIM career plan rates were lower than their counterparts among PGY-3 resi-

dents. A GIM career plan was reported by 29.2% of primary care program residents and 13.5% of categorical residents as PGY-1 residents (AOR,

2.71; 99% CI, 2.20-3.35; $P < .001$). GIM career plans were reported more frequently by women than men (17.7% vs 12.8%, respectively; AOR, 1.40; 99% CI,

Table 1. Demographic Characteristics and Career Plans of Graduating PGY-3 Residents in 2009, 2010, and 2011 (N = 16 781)^a

Variable	No. (%) of Residents		
	Total (N = 16 781)	Categorical (n = 15 361)	Primary Care (n = 1420)
Year of graduating residents			
2009	5432 (32.4)	4967 (32.3)	465 (32.7)
2010	5575 (33.2)	5107 (33.2)	468 (33.0)
2011	5774 (34.4)	5287 (34.4)	487 (34.3)
Sex			
Men	9204 (55.0)	8552 (55.9)	652 (46.1)
Women	7519 (45.0)	6757 (44.1)	762 (53.9)
Medical school location			
United States	8036 (48.1)	7457 (48.8)	579 (41.1)
International	8659 (51.9)	7828 (51.2)	831 (58.9)
Career plan			
General internal medicine	3605 (21.5)	3043 (19.9)	562 (39.6)
Hospital internal medicine	1552 (9.3)	1502 (9.8)	50 (3.5)
All subspecialties	10 753 (64.2)	10 008 (65.3)	745 (52.5)
Cardiology	2232 (13.3)	2115 (13.8)	117 (8.2)
Pulmonary/critical care	1544 (9.2)	1434 (9.4)	110 (7.8)
Hematology/oncology	1486 (8.9)	1380 (9.0)	106 (7.5)
Gastroenterology	1404 (8.4)	1304 (8.5)	100 (7.0)
Nephrology	945 (5.6)	893 (5.8)	52 (3.7)
Endocrinology	801 (4.8)	748 (4.9)	53 (3.7)
Infectious diseases	721 (4.3)	649 (4.2)	72 (5.1)
Rheumatology	508 (3.0)	468 (3.1)	40 (2.8)
Geriatrics	204 (1.2)	171 (1.1)	33 (2.3)
Other subspecialty	382 (2.3)	348 (2.3)	34 (2.4)
Undecided subspecialty	526 (3.1)	498 (3.2)	28 (2.0)
Non-internal medicine	142 (0.8)	132 (0.9)	10 (0.7)
Undecided	695 (4.1)	643 (4.2)	52 (3.7)

Abbreviation: PGY-3, postgraduate year 3.
^aNumbers may not sum to the given column totals because of missing data.

Table 2. Main Effect Results of GIM Career Plans Among Graduating Internal Medicine Residents, 2009-2011 (n = 16 617)^a

Variable	No. of Residents	No. (%) Reporting GIM Career Plan	Unadjusted OR (99% CI)	P Value	Adjusted OR (99% CI) ^b	P Value
Program type						
Categorical	15 214	3023 (19.9)	1 [Reference]		1 [Reference]	
Primary care	1403	556 (39.6)	2.65 (2.28-3.08)	<.001	2.76 (2.35-3.23)	<.001
Sex						
Men	9150	1582 (17.3)	1 [Reference]		1 [Reference]	
Women	7467	1997 (26.7)	1.75 (1.58-1.93)	<.001	1.69 (1.53-1.87)	<.001
Medical school location						
International	8616	1816 (21.1)	1 [Reference]		1 [Reference]	
United States	8001	1763 (22.0)	1.06 (0.96-1.17)	.13	1.76 (1.50-2.06)	<.001

Abbreviations: GIM, general internal medicine; OR, odds ratio.
^aSample size differs from the total number of residents (N=16 781) due to nonresponse to the sex, medical school location, or career plan questions.
^bFrom multivariable logistic regression analysis including program type, sex, medical school location, year of graduation, and the interactions between program type, sex, and medical school location.

1.21-1.61; $P < .001$) and by US medical graduates compared with international medical graduates (16.4% vs 13.7%, respectively; AOR, 1.82; 99% CI, 1.47-2.24; $P < .001$). Among categorical PGY-1 residents, career plan differences between US and international medical graduates were small (14.1% vs 13.0%, respectively; AOR, 1.07; 99% CI, 0.92-1.25; $P = .24$). Within the primary care program, US medical graduates were markedly more likely than international medical graduates to report GIM career plans (43.8% vs 19.8%, respectively; AOR, 3.09; 99% CI, 2.09-4.57; $P < .001$). In no group of PGY-1 residents did the likelihood of a GIM career plan exceed 50%, with the highest rate (49.8%) occurring for women primary care program residents who had graduated from US medical schools.

Changes in Career Plans During Training

Overall, 864 of 1573 residents (54.9%) with a GIM career plan as PGY-1 residents still reported this plan as PGY-3 residents (Table 4 and eTable). Of the 709 residents who changed career plans away from general medicine, 399 (56.3%) reported a subspecialty career plan as PGY-3 residents, 256 (36.1%) planned a hospitalist career, 8 (1.1%) reported a non-internal medicine career, and 46 (6.5%) were undecided.

The stability of reported PGY-1 GIM career plans over the course of residency training differed by program type, sex, and medical school location (FIGURE 1). Primary care program residents with a PGY-1 GIM career plan were more likely than

categorical residents to maintain a general medicine career plan as PGY-3 residents (68.2% vs 52.3%, respectively; AOR, 1.81; 99% CI, 1.25-2.64; $P < .001$). Women residents vs men residents (62.4% vs 47.2%, respectively; AOR, 1.75; 99% CI, 1.34-2.29; $P < .001$) and US medical graduates vs international medical graduates (60.9% vs 49.2%, respectively; AOR, 1.48; 99% CI, 1.13-1.93; $P < .001$) were also more likely to have consistent GIM career plans.

Examining career plans retrospectively, only 864 of 2285 residents (37.8%) with a GIM career plan as PGY-3 residents had reported this career plan as PGY-1 residents (Table 4). Of the remaining 1421 residents with a GIM career plan as PGY-3 residents, 1047 (73.7%) had reported a subspecialty plan as PGY-1 residents, 275 (19.4%) had been undecided, 83 (5.8%) had planned to be hospitalists, and 16 (1.1%) had planned non-internal medicine careers.

The proportion of residents with a GIM career plan in PGY-3 who had also reported a general medicine career plan in PGY-1 also differed by program type, sex, and medical school location (FIGURE 2). Primary care program residents with a PGY-3 GIM career plan were more likely than categorical residents to have had a GIM career plan as PGY-1 residents (52.8% vs 35.2%, respectively; AOR, 1.32; 99% CI, 1.02-1.71; $P = .005$). Women PGY-3 residents who reported general medicine career plans in PGY-3 were more likely than men to have had GIM career plans

Table 3. Full Interaction Results of GIM Career Plans Among Graduating Internal Medicine Residents, 2009-2011 (n = 16 617)^a

Sex and Medical School Location	No. of Residents	No. (%) Reporting GIM Career Plan	Odds Ratio (99% CI) ^b	P Value
Categorical Program Type				
Men				
International	4581	792 (17.3)	1 [Reference]	
United States	3920	572 (14.6)	0.90 (0.81-1.00)	.01
Women				
International	3208	798 (24.9)	1.58 (1.37-1.83)	<.001
United States	3505	861 (24.6)	1.53 (1.33-1.76)	<.001
Primary Care Program Type				
Men				
International	426	105 (24.6)	1.42 (1.14-1.76)	<.001
United States	223	113 (50.7)	4.84 (3.84-6.10)	<.001
Women				
International	401	121 (30.2)	2.40 (1.89-3.03)	<.001
United States	353	217 (61.5)	8.20 (6.40-10.50)	<.001

Abbreviation: GIM, general internal medicine.

^aSample size differs from the total number of residents (N=16 781) due to nonresponse to the sex, medical school location, or career plan questions.

^bFrom multivariable logistic regression analysis including program type, sex, medical school location, year of graduation, and the interactions between program type, sex, and medical school location.

Table 4. Career Plans of Internal Medicine Residents in PGY-1 and PGY-3 (n = 10 591)

PGY-1 Career Plan	Total (% of PGY-1)	PGY-3 Career Plan (% of PGY-1 Row Total)				
		General Internal Medicine	Hospital Internal Medicine	Subspecialty	Non-Internal Medicine	Undecided
General internal medicine	1573 (14.9)	864 (54.9)	256 (16.3)	399 (25.4)	8 (0.5)	46 (2.9)
Hospital internal medicine	309 (2.9)	83 (26.9)	138 (44.7)	75 (24.3)	0	13 (4.2)
Subspecialty	7629 (72.0)	1047 (13.7)	495 (6.5)	5787 (75.9)	62 (0.8)	238 (3.1)
Non-internal medicine	50 (0.5)	16 (32.0)	4 (8.0)	22 (44.0)	6 (12.0)	2 (4.0)
Undecided	1030 (9.7)	275 (26.7)	162 (15.7)	467 (45.3)	12 (1.2)	114 (11.1)
Total (% of PGY-3)	10 591 (100)	2285 (21.6)	1055 (10.0)	6750 (63.7)	88 (0.8)	413 (3.9)

Abbreviations: PGY-1, postgraduate year 1; PGY-3, postgraduate year 3.

as PGY-1 residents (41.2% vs 34.0%, respectively; AOR, 1.48; 99% CI, 1.27-1.74; $P < .001$), and PGY-3 residents who were US medical graduates who reported general medicine career plans in PGY-3 were also more likely than international medical graduates to have had GIM career plans as PGY-1 residents (43.7% vs 32.6%, respectively; AOR, 1.28; 99% CI, 1.09-1.50; $P < .001$).

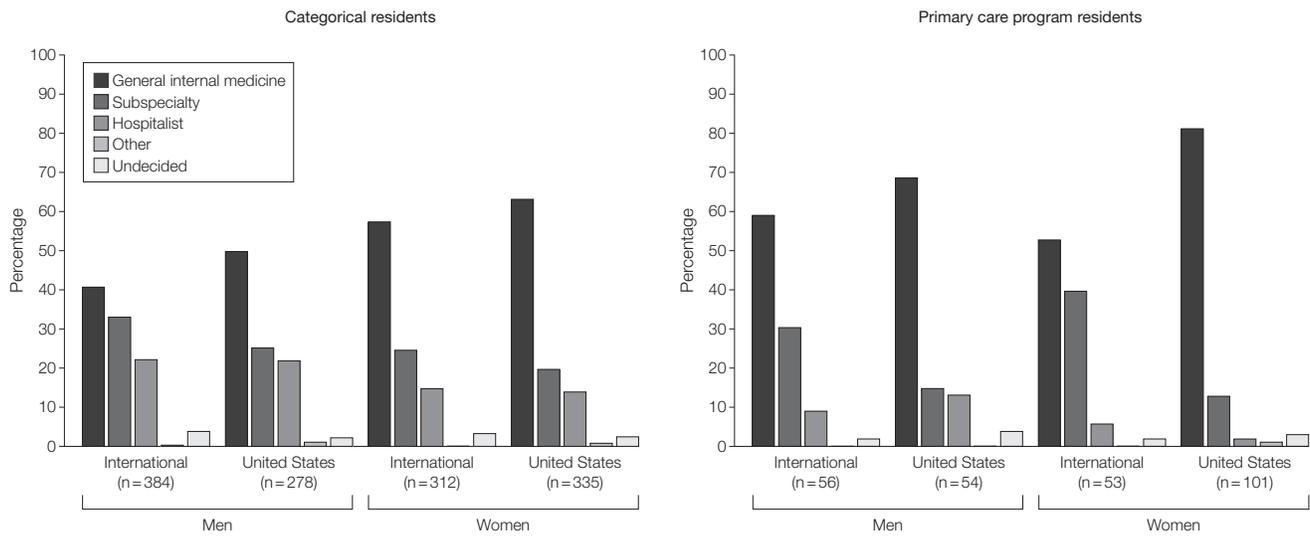
COMMENT

This study of a large national sample of internal medicine residents confirms that general medicine remains a less common career plan overall than subspecialty medicine. Combined with the fact that only a small minority of medical students express interest in general medicine and primary care careers, the small number of internal medicine residents reporting plans for

generalist careers means a very limited number of generalists can be expected to enter practice each year.

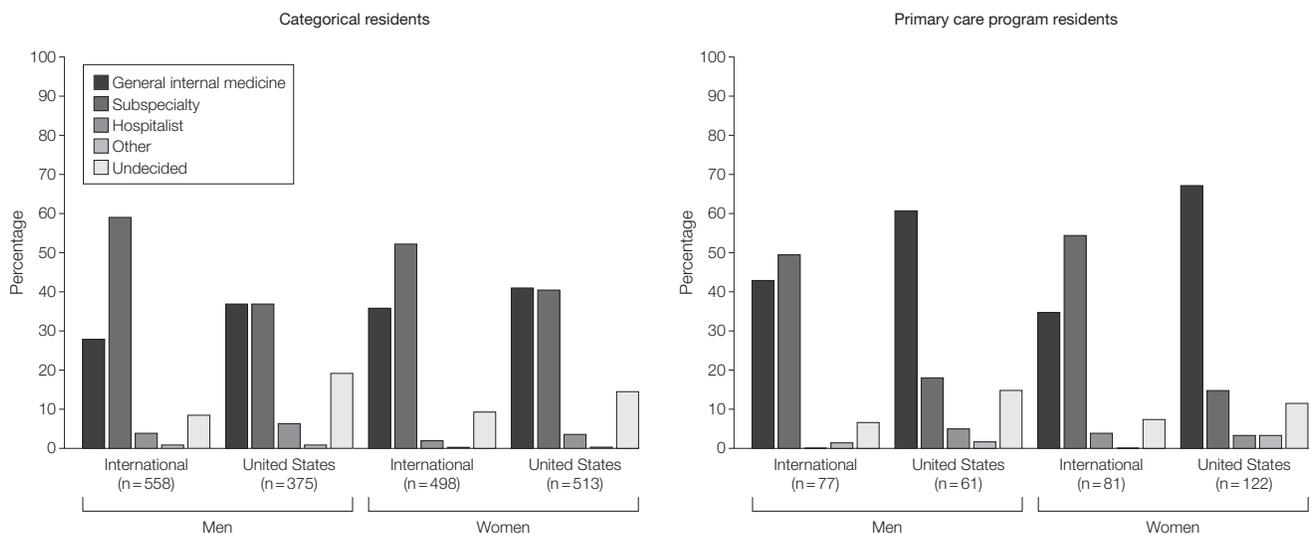
This study offers several important novel insights. First, this is the first national study to our knowledge reporting that even in primary care internal medicine residency programs dedicated to generalist and primary care training, a majority of graduates still reported plans to pursue subspecialty ca-

Figure 1. PGY-3 Career Plans of Residents Reporting a General Internal Medicine Career Plan as PGY-1 Residents in 2009-2011 (n=1573)



PGY-1 indicates postgraduate year 1; PGY-3, postgraduate year 3.

Figure 2. PGY-1 Career Plans of Residents Reporting a General Internal Medicine Career Plan as PGY-3 Residents in 2009-2011 (n=2285)



PGY-1 indicates postgraduate year 1; PGY-3, postgraduate year 3.

reers. Thus, although primary care program graduates were twice as likely as categorical residents to report generalist career plans in their year of graduation, the early promise of these programs for producing general internists has been tempered by the more global decline in interest in general medicine.

Second, this is also the first national study to our knowledge reporting that ultimate career plans appear to be similar for US and international medical graduates in categorical training programs, but differ markedly between these 2 groups in primary care training programs. In fact, generalist career plans among international medical graduates in primary care programs were only slightly more likely than among those in categorical programs. Because nearly 60% of residents in primary care training programs are international medical graduates, understanding and addressing the low rates of reported general medicine career plans in this group of residents may be important to efforts to stimulate greater numbers of general internists.

Third, the reported career plan changes observed in our study afford insight into how the generalist physician workforce develops during training. Residents in primary care programs, women, and US medical graduates who reported a GIM career plan early in training were more likely to report this same career plan as PGY-3 residents. However, changes in career plan both into and away from general medicine were common. In our study, more PGY-3 residents reporting a GIM career plan initially planned to be subspecialists as PGY-1 residents than originally planned to be generalists. This was particularly noted among international medical graduates ultimately reporting generalist career plans, even those in primary care programs, and among men, most of whom reported plans for subspecialty training at the beginning of their residency. Reported career plan shifts away from GIM during training were also frequent, affecting nearly half of PGY-1 residents

reporting a generalist career plan. Conversion to subspecialty career plans was most common among this group, with a sizable additional number of residents opting later in training for hospitalist careers.

These data suggest that solutions to meet the need for generalist physicians must be constructed with care. Expanding medical school enrollment or the number of internal medicine residency positions may simply result in more subspecialists, if the number of specialty and fellowship slots is also increased.^{1,5,6} If the number of fellowship slots is held constant or reduced, however, a greater proportion of generalist physicians may begin their careers in a field for which they do not have primary affinity. Expanding the number of primary care program positions^{5,6} may have similar effects if the majority of primary care program graduates continue to prefer subspecialty career plans. Additionally, the potential effect of the large reduction in Title VII funding for primary care training since the late 1970s on the primary care workforce must be noted, as this reduction generally parallels the continued decline in trainee interest in general medicine and primary care in recent years.^{5,6} It seems likely that significant renewed investment in such programs will be necessary to effectively promote primary care careers.^{5,6}

The literature to date on residents' career plan decisions is limited, but lifestyle considerations, anticipated income, match of future scope of practice with interests, and desire for long-term relationships with patients may each be important as residents' career choices evolve.^{9,10} In addition, limited availability of preferred subspecialty positions may account for some residents' pursuit of general medical careers.^{9,10} The reasons behind these career plan patterns are not well understood, and the factors contributing to changes in career decisions during training are worthy of further investigation. However, the observation that residents commonly change reported career plans both into and away from

general medicine should stimulate research into how best to increase the appeal of general medicine to trainees; their career plans can be changed both positively and negatively with respect to general medicine and primary care during residency.

Indeed, efforts to revitalize general medicine will be central to any successful strategy to train and retain larger numbers of general internists.^{1,5,6} As suggested by a study by Schwartz et al⁸ in relation to internal medicine as a whole, improving learners' experiences in general medicine is necessary but will not be sufficient. Reductions in administrative burdens, payment reform, medical education debt management, and elements of health care reform hold promise for improving general medical practice,^{1,5,6} but learners will need to observe evidence that these measures can be effectively executed to make general medicine careers more desirable.

Our study has several limitations. First, follow-up data were not available to confirm the career paths reported by the residents in our study. However, the distribution of first-year specialty fellowships in recent years has been very similar to the aggregate career plan totals reported in our study.^{17,18} Although this comparison does not allow assessment of reporting at the individual level, it suggests that the self-reported data on career plans reflect actual fellowship numbers quite well overall. Also, most fellowship decisions are made by the time of the PGY-3 IM-ITE; therefore, residents should generally know their subspecialty plans by this time. Second, because our study asked about ultimate career plans, it is possible some residents might initially enter the workforce in general medicine with plans that evolve later to pursue other fields.^{21,22} Therefore, the GIM career plan frequency estimates from our study likely represent upper limits on the true numbers of practicing generalists produced by internal medicine training programs. Third, although the response rate in our study was high, it re-

mains possible that those residents who supplied career plan data might differ from nonresponders. In this regard, it is reassuring that the demographics of responders in our study were similar to available national demographic data for internal medicine residents in the 2009-2010 through 2011-2012 academic years.^{17,18}

In conclusion, graduates of primary care internal medicine training programs, women, and US medical school graduates were more likely than their counterparts to report generalist career plans. These residents were also more likely to maintain interest in gen-

eralist careers over the course of their training. However, general medicine career plans remained less common than subspecialty career plans in each of these groups. The reasons underlying the observed patterns of career plans during residency training require additional study to effectively inform efforts to stimulate greater numbers of practicing general internists.

Author Contributions: Dr West had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design, acquisition of data, analysis and interpretation of data, and critical revision of the manuscript for important intellectual content: West, Dupras.

Drafting of the manuscript and statistical analysis: West.

Administrative, technical, or material support: Dupras.

Conflict of Interest Disclosures: Both authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

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Online-Only Material: The eAppendix, eTable, and Author Audio Interview are available at <http://www.jama.com>.

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