

Reported Visa Acceptance or Sponsorship for Non-US Citizen Applicants to US Internal Medicine Residency Programs

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ABSTRACT

Background Non-US citizen international medical graduates (IMGs) make up a significant proportion of the physician workforce, especially in physician shortage areas and specialties. IMGs face barriers matriculating in US residency programs. Whether a program reports accepting J-1 visas and sponsoring H-1B visas influences their decision to apply, it remains unclear which institutional factors shape programs' likelihood to consider visa-seeking applicants.

Objective We investigated factors associated with programs reporting accepting J-1 visas or sponsoring H-1B visas for non-citizen applicants in internal medicine, the specialty most sought after by IMGs.

Methods We performed multivariable regression analyses using publicly available data to identify characteristics associated with reported visa acceptance (J-1 and or H-1B). Covariates included university affiliation, program size, program type (academic, university-affiliated community, or community), and Doximity reputation ranking.

Results We identified 419 programs: 267 (63.7%) reported accepting J-1 visas. Among programs that accepted J-1 visas, 65.6% (n=175) accepted only J-1 visas while 34.5% (n=92) sponsored H-1B and accepted J-1 visas. Ranking in the third quartile (vs first quartile) was associated with lower odds of accepting J-1 (aOR 0.12; 95% CI 0.02-0.87; $P=.04$) and sponsoring H-1B visas (aOR 0.19; 95% CI 0.05-0.76; $P=.02$). Community status (vs academic) was associated with lower odds of accepting J-1 visas (aOR 0.2; 95% CI 0.06-0.64; $P=.007$), as was county hospital affiliation vs non-county hospitals (aOR 0.22; 95% CI 0.11-0.42; $P<.001$).

Conclusions While prior evidence shows that most internal medicine programs that substantially enroll IMGs are low ranking, high-ranking internal medicine programs are paradoxically more likely to report that they consider and sponsor visa-seeking applicants.

Introduction

A quarter of licensed US physicians were trained in non-US medical schools, making immigration a vital aspect of the US health care system. Foreign-trained physicians contribute to addressing the US physician shortage, especially in geographic areas and specialties most affected by the shortage, such as geriatrics, where they make up more than half of the active physician workforce.¹ While they contribute tremendously to the health care workforce, non-US citizen international medical graduates (IMGs) face longstanding barriers related to immigration visas, making it challenging to identify programs that may consider their applications.^{2,3} The *sorting* of applicants begins with whether applicants perceive a program to be "IMG-friendly" or "visa-friendly,"⁴ and is further shaped by the number of IMGs in the program. Furthermore, programs may report whether they consider visa-seeking applicants.

In addition to difficulties identifying programs, IMGs have increasingly experienced visa delays and denials since the implementation of more stringent visa and security requirements following September 11, 2001.^{5,6} These barriers have increased in recent years, following the January 2017 "Protecting the Nation from Foreign Terrorist Entry into the United States" executive order⁷ and new travel restrictions related to the COVID-19 pandemic.⁸ Beyond delays and denials, visa types also create constraint. J-1 and H-1B visas are the 2 visa types available to non-US-citizen IMGs.² J-1 visas are sponsored by the Educational Commission for Foreign Medical Graduates and with fees paid for by applicants at no cost to training hospitals, whereas H-1B visa fees are paid by training hospitals.³ H-1B visas allow up to 6 training years, generally a year shorter than J-1 visas.³ Due to costs and a 2-year home residency requirement after residency, J-1 visas are less desirable for those who intend to subspecialize or practice in the United States. Indeed, while IMGs more likely to remain in primary care than US medical graduates,⁹ it is not clear whether this is due to predisposition toward primary care or visa barriers to sub-specialization. Some government programs allow

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a capped proportion of J-1 trainees to waive the home residency requirement, but they vary by state, thus constraining where residents may pursue employment. While H-1B visas are relatively advantageous, they can be more challenging to obtain. After the 2016 Medicare cuts to graduate medical education (GME) funding, many programs stopped sponsoring H-1B visas.¹⁰ In addition to costs, organizations not affiliated with universities are subject to a federally mandated cap on their number of H-1B-sponsored employees. The funding cuts and pre-existing H-1B caps may impact IMGs' visa options and residency placement. The majority of IMGs are on J-1 visas,² and they fill a more significant proportion of community-based internal medicine residency positions compared to university-based residency positions.⁴

Certain programs have garnered an informal reputation for becoming more "IMG-friendly,"^{4,11,12} either by having a higher proportion of IMG residents, being in a community setting, or by visa sponsorship policies.¹³ However, little research has rigorously identified what institutional factors are related to visa sponsorship for IMGs. Systematically identifying such differences might inform IMGs' application choices. Beyond applicant-level implications, sociologists of medical education have argued that the sorting, or stratification of medical trainees by program types, ultimately shapes trainees' approaches to patient care,^{4,12} a critical consideration given the vitality of the role IMGs play in caring for underserved populations.

Furthermore, graduates of US medical schools who are foreign nationals are also affected by institutions' visa policies.¹⁴ Whether programs sponsor H-1B visas (as they are more desirable) shapes where they pursue residency and their options for fellowship, and it can impact their ability to reach their career goals compared to their US citizen and permanent resident peers of similar academic backgrounds.

Using publicly available databases commonly accessed by residency applicants, we investigated internal medicine programs sponsoring J-1 and H-1B visas (the most popular specialty among IMGs¹). Given the aforementioned differences between J-1 and H-1B visas, we hypothesized that there might be differences in institution type and visa sponsorship.

Methods

Data Sources

We collected publicly available data through the Fellowship and Residency Electronic Interactive Database Access (FREIDA) on all internal medicine programs.^{15,16} The American Medical Association maintains FREIDA and updates it yearly. Variables

Objectives

To identify factors associated with programs reporting accepting J-1 visas or sponsoring H-1B visas for non-citizen applicants in internal medicine, the specialty most sought after by international medical graduates (IMGs).

Findings

Lower ranking, community status, and county hospital affiliation were associated with lower odds of reporting sponsoring J-1 and H-1B visas.

Limitations

This study is focused on internal medicine residencies. Because of structural differences from other specialties such as the prevalence and role of non-designated preliminary slots, findings may not be generalizable.

Bottom Line

While prior evidence shows that most internal medicine programs that substantially enroll IMGs are low ranking, high-ranking internal medicine programs are paradoxically more likely to report that they consider and sponsor visa-seeking applicants.

extracted included location, visa type sponsored/accepted (J-1, H-1B), and residency characteristics (% US MD, % IMG, % DO, program size). We extracted program reputational rankings (2020), county/public hospital affiliation, and university affiliation from the Doximity program navigator,¹⁷ a popular and influential resource used by residency applicants.^{18,19} Doximity reputational rankings are developed with the input of current and graduated internal medicine residents via annual surveys.²⁰

Outcomes and Covariates

The primary outcomes were the odds of programs reporting accepting residents with J-1 visas and sponsoring H-1B visas. (All programs that fund H-1B visas also accept J-1 visa-seeking applicants, but not all programs that accept J-1 seeking applicants necessarily fund H-1B visas.) The primary independent variable was program type, categorized as academic (whether the program in a hospital that is a primary affiliate of a medical school), university-affiliated community program (in a community-based hospital that is affiliated with an academic medical center but is not its primary affiliate), or a community program (in a community setting and is neither part of an academic medical center, nor in a hospital with a medical school affiliation). Other variables included the program's Doximity reputation ranking, program size, number of IMG residents (including US citizens who went to medical school abroad), and proportion of residents from osteopathic medical schools. We performed subgroup analyses restricted to university-affiliated programs.

TABLE 1

Characteristics of Identified Internal Medicine Programs

Characteristic	No J-1/H-1B (n=152)	J-1 Only (n=175)	J-1 and H-1B (n=92)	Chi-Square or t Test P Value
Affiliated with a county hospital	26 (17.1%)	48 (27.4%)	16 (17.4%)	.04
Affiliated with a university	88 (57.9%)	132 (75.4%)	57 (62.0%)	.02
Community program	120 (78.9%)	95 (54.3%)	55 (59.8%)	<.001
Median Doximity ranking (IQR)	295.5 (156-420)	182 (96.5-294)	170.5 (53.5-312.5)	<.001
Median percentage of DO graduates per program (IQR)	11.35 (3.75-38.6)	9.2 (2-20.1)	3.25 (0-11.4)	<.001
Median percentage of international medical graduates per program (IQR)	31.2 (7.7-80.1)	38.7 (10.4-74.7)	44.5 (6.7-87.7)	.51

Note: A *t* test was used for continuous variables (Doximity ranking, percentage of DO graduates, and percentage of IMG graduates), and chi-square test was used for the remaining categorical variables.

Statistical Analysis

We used descriptive statistics and performed logistic regressions. We clustered standard errors at the state level in each regression analysis to account for potential state-related policies affecting physician immigration.²¹ We excluded hospitals with missing primary outcome or independent variable data through casewise deletion. We confirmed the fit of the logistic regression model with a Hosmer-Lemeshow goodness-of-fit test.²² We performed all analyses in STATA 15.0 (StataCorp LLP, College Station, TX), and all tests were 2-tailed with statistical significance defined at $P < .05$. We used publicly available ecological data, and as such this study is not considered human subjects research and is exempt from institutional review.

Results

We identified 419 internal medicine programs through FREIDA (80% of 519 existing programs as documented by the American Board of Internal Medicine),²³ and 267 of the internal medicine programs in FREIDA (63.7%) reported accepting J-1 visas. Among programs that reported accepting J-1 visas, 65.6% ($n=175$) reported accepting only J-1 visas, while 34.5% ($n=92$) reported sponsoring H-1B and accepting J-1 visas. Among programs that neither accept J-1 visas nor sponsor H-1B visas, the median (IQR) proportion of IMG residents is 31.2% (7.7%-80.1%), compared to 38.7% (10.4%-74.7%) among programs that accept J-1 visas and don't sponsor H-1B visas, and 44.5% (6.7%-87.7%) among programs that accept J-1 visas and sponsor H-1B visas (TABLE 1).

Across all programs, community status (compared to academic) was associated with lower odds of reporting accepting J-1 visas (aOR 0.2; 95% CI 0.06-0.64; $P=.01$), as were programs with county hospital affiliation compared to non-county affiliated

hospitals (aOR 0.22; 95% CI 0.11-0.42; $P=.001$). Additionally, lower Doximity reputation ranking was associated with lower odds of reporting accepting J-1 visas, with statistically significant differences noted for programs in the third quartile (aOR 0.12; 95% CI 0.02-0.87; $P=.04$) and fourth quartile (aOR 0.10; 95% CI 0.02-0.54; $P=.01$) of rankings, compared to programs in the first quartile. Having a high proportion of IMG residents (including US citizens), being in the first quartile (aOR 6.96; 95% CI 1.38-35.10; $P=.02$), second quartile (aOR 6.09; 95% CI 2.27-16.32; $P<.001$), and third quartile (aOR 2.25; 95% CI 1.01-4.97; $P=.04$) were associated with higher odds of reporting accepting J-1 visas for programs (TABLE 2).

Among programs that report accepting J-1 visas, university affiliation was associated with lower odds of reporting sponsoring H-1B visas (aOR 0.36; 95% CI 0.15-0.85; $P=.01$), as was Doximity ranking in the third (vs first) quartile (aOR 0.19; 95% CI 0.05-0.76; $P=.02$), and proportion of DO residents in the first (aOR 0.34; 95% CI 0.12-0.91; $P=.03$) and second quartile (aOR 0.34; 95% CI 0.16-0.72; $P=.01$) compared to the fourth quartile (TABLE 2). We conducted subgroup analyses of university-affiliated programs (online supplementary data). Among these programs, "community" status was associated with lower odds of reporting accepting J-1 (aOR 0.23; 95% CI 0.08-0.73; $P=.01$) compared to academic status, as was affiliation with a county hospital (aOR 0.31; 95% CI 0.13-0.74; $P=.01$). In terms of H-1B visas, among programs that accept J-1 visas, Doximity ranking in the third quartile was associated with lower odds of sponsoring H-1B visas (aOR 0.12; 95% CI 0.02-0.83; $P=.03$). Programs in the second quartile of proportions of residents from DO-designated medical schools also had lower odds of sponsoring H-1B visas (aOR 0.28; 95% CI 0.1-0.83; $P=.01$) compared to those in the first quartile.

TABLE 2

Association Between Program Characteristics and Odds of Reporting Accepting and Sponsoring J-1 and H-1B Visas

Characteristic	Dependent Variable: Does the Program Report Accepting J-1 Visas?		Dependent Variable: Does the Program Report Sponsoring H-1B Visas?	
	All Programs (n=419)		Programs That Sponsor J-1 (n=267)	
	aOR (95% CI)	P Value	aOR (95% CI)	P Value
Covariates				
County hospital affiliation	0.22 (0.11-0.42)	<.001	0.54 (0.23-1.26)	.15
Community (vs academic)	0.2 (0.06-0.64)	.007	1.32 (0.53-3.29)	.56
University affiliation	1.06 (0.4-2.83)	.90	0.36 (0.15-0.85)	.02
Doximity reputation ranking				
First quartile	1 (ref)		1 (ref)	
Second quartile	0.45 (0.1-1.98)	.29	0.46 (0.13-1.63)	.23
Third quartile	0.12 (0.02-0.87)	.04	0.19 (0.05-0.76)	.02
Fourth quartile	0.10 (0.02-0.54)	.007	0.29 (0.05-1.76)	.18
Proportion of DO residents				
0-1.3%	1 (ref)		1 (ref)	
1.3-6.9%	0.64 (0.22-1.85)	.41	0.74 (0.38-1.44)	.37
6.9-19.1%	0.63 (0.17-2.26)	.48	0.34 (0.16-0.72)	.005
>19.1%	0.97 (0.24-3.99)	.97	0.34 (0.12-0.91)	.03
Proportion of IMG residents				
0-8.3%	1 (ref)		1 (ref)	
8.3-39.5%	2.25 (1.01-4.97)	.04	0.98 (0.39-2.48)	.97
39.5-80.2%	6.09 (2.27-16.32)	<.001	1.28 (0.38-4.31)	.69
80.2%+	6.96 (1.38-35.1)	.02	1.36 (0.27-6.81)	.71
Program size				
0-36	1 (ref)		1 (ref)	
36-54	0.92 (0.31-2.71)	.88	1.02 (0.4-2.56)	.97
54-90	0.71 (0.25-2.06)	.53	0.84 (0.27-2.58)	.76
90+	2.93 (0.4-21.65)	.29	0.99 (0.26-3.75)	.98

Abbreviations: DO, Doctor of Osteopathic Medicine; IMG, international medical graduate.

Discussion

Our study has 4 main findings. First, programs reportedly more accepting of J-1 visas (and more willing to sponsor H-1B visas) were higher in Doximity rankings. Second, community and county hospital-affiliated programs were less likely to report accepting J-1 visas; in contrast, among programs that report accepting J-1 visas, university-affiliated programs were less likely to report sponsoring H-1B visas. Third, programs with more IMGs were more likely to report sponsoring J-1 visas. Still, there was no association between the proportion of IMG residents and the odds of sponsoring H-1B visas. Fourth, greater proportions of DO residents were associated with lower odds of sponsoring H-1B visas but not with odds of accepting J-1 visas.

That factors such as lower ranking, community status, and county hospital affiliation are associated

with lower odds of reporting accepting J-1 visas is consistent with existing evidence. A recent study based on a survey of internal medicine program directors reported that more university programs sponsor visas than their community-based counterparts.²⁴ Program directors reported concerns about their programs' reputation when recruiting IMGs,²⁴ which may explain why lower-ranked programs are less likely to report offering J-1 visas to protect any perceived prestige. This study differs from ours in that we provide additional nuance in the types of visas sponsored by programs. While university programs altogether are more likely to report considering applicants with J-1 visas, it is interesting that all other things considered, university-affiliated programs are paradoxically less likely to report sponsoring H-1B visas, given that the federal H-1B employee cap does not apply to university-affiliated programs. This is likely because a significant proportion of university-

affiliated programs also report concerns about reputation.²⁴ Additionally, GME funding cuts may contribute to less highly ranked programs' lower willingness to sponsor H-1B visas, given the associated high administrative and legal costs, in contrast with J-1 visas for which residents assume the costs. University-affiliated programs may also be concerned with the cost of H-1B programs. However, given the H-1B cap exemption for universities and university-affiliated organizations, they are arguably better situated than community-based, non-university-affiliated programs to navigate the bureaucratic aspects of visa applications.

Notably, programs with more IMGs were more likely to report sponsoring J-1 but not H-1B visas. This is important for several reasons. First, applicants perceive programs with more IMGs to be "IMG-friendly."¹¹ However, the proportion of IMGs does not necessarily translate to the residents requiring visas since a significant proportion of IMGs are US citizens. Indeed, some programs prefer US-citizen IMGs over non-citizen IMGs as a form of cultural bias.²⁵ The book *Doctors' Orders: The Making of Status Hierarchies in an Elite Profession* documents insights about discrimination against non-citizen IMGs from program leaders and residents, including concerns about acculturation into US norms related to communication style and different accents.¹¹ Previous studies have shown that programs in various specialties show bias against IMGs in the selection process.²⁶

Community (vs academic) programs have lower odds of reporting J-1 visa sponsorship. Still, while more academic programs report accepting or sponsoring visas, in practice, far fewer enroll visa-seeking residents, as evidence suggests. Indeed, over 50% of community program slots were filled by IMGs between 2007 and 2019, compared to about a quarter at academic programs.²⁴ Third, the association between the proportion of DO residents and lower odds of reporting sponsoring visas is consistent with prior findings regarding the distribution of applicant type across internal medicine programs, suggesting that 17% of programs were "DO-dominated," while 42% were "IMG-dominated" and 16% were integrated.⁴ Visa sponsorship is an essential element of reifying such stratification among programs.

Our findings have many implications. First, there is a gap between programs reporting visa acceptance based on our results and the odds of interviewing and ranking visa-seeking applicants based on recent evidence.²⁴ Applicants may apply to programs that report accepting or sponsoring visas but might not offer them an interview or consider ranking them. This likely contributes to the financial burden faced by visa-seeking applicants. IMGs have to apply to a significantly larger number of programs than US

MDs²⁷ and are at risk of spending money on futile applications if programs report accepting J-1 visas but do not consider their applications in practice. While all IMGs are a minority of matched residents, over half of internal medicine applicants are IMGs.²⁸ Knowingly disfavoring IMGs while reporting accepting visa-seeking applicants (J-1 or H-1B) is emblematic of decoupling, a phenomenon described in the organizational sociology literature as the creation and maintenance of a gap between formal policies adopted ceremonially and true organizational practices, allowing organizations to maintain legitimacy and appear neutral while doing little to address inequality.²⁹⁻³² This decoupling may unwittingly contribute to an ongoing problem in GME—a steady national rise in the number of applications.³³ Governing bodies in GME may therefore consider trialing and implementing policies regarding transparency in reporting visa acceptability in theory and in practice.

Additionally, that far fewer programs sponsor H-1Bs, including university-affiliated programs (despite not being subject to an H-1B visa cap), has career implications for visa-seeking IMGs. By requiring that they return to their home countries for at least 2 years after completing residency, the J-1 program forces an interruption in training for IMGs who may otherwise aspire to subspecialize. Such interruptions may affect their odds of matching into fellowships. For instance, a study of cardiology applicants showed that IMGs were less likely than US MDs to match into fellowship at the first attempt.³⁴

In addition to the financial burden and the impact on IMGs and foreign national US MDs, there are consequences for the US physician workforce and health care delivery: a single institution study found that H-1B sponsored trainees were more likely to practice in-state than those with J-1 visas after residency.³⁵ After residency, IMGs are more likely to practice in lower-income rural and urban communities underserved by USMGs³⁶; however, non-academic programs (that may be located in those communities) may not consistently welcome non-citizen IMGs. The disproportionate sorting of IMGs into non-academic programs has implications pertinent to current health disparities along racial and urban-rural lines, given that rural and urban areas with greater proportions of people of color experience greater physician shortages. The structural bias faced by IMGs, attributable to stigma and discrimination, may translate into an added form of discrimination against lower-resourced populations in the United States.

Our study has limitations. This is a cross-sectional analysis; therefore, the associations we identified, though significant, cannot necessarily be deemed causal. Because we did not account for missing

information, our findings may be skewed toward programs that report data to FREIDA and the Doximity residency explorer. Our results may not necessarily be generalizable to other specialties. While the responsibility and costs of sponsoring visa-seeking residents are borne by institutions, different programs within the same institution may have divergent policies and practices in this realm.

Conclusions

While prior evidence shows that the majority of internal medicine programs that substantially enroll IMGs are less likely to be highly ranked, we find that high-ranking internal medicine programs are more likely to report accepting or sponsoring visas compared to their low-ranking counterparts.

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