What Are We Telling Our Students? A National Survey of Clerkship Directors' Advice for Students Applying to Internal Medicine Residency

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ABSTRACT

Background Little is known about the advice fourth-year medical students receive from their advisors as they prepare to apply for residency training.

Objective We collected information on recommendations given to medical students preparing to apply to internal medicine residencies regarding fourth-year schedules and application strategies.

Methods Clerkship Directors in Internal Medicine conducted its annual member survey in June 2013. We analyzed responses on student advising using descriptive and comparative statistics, and free-text responses using content analysis.

Results Of 124 members, 94 (76%) responded, and 83 (88%) advised fourth-year medical students. Nearly half (45%) advised an average of more than 20 students a year. Advisors encouraged students to take a medicine subinternship (Likert scale mean 4.84 [1, strongly discourage, to 5, strongly encourage], $SD = 0.61$); a critical care rotation (4.38, $SD = 0.79$); and a medicine specialty clinical rotation (4.01, $SD = 0.80$). Advisors reported they thought fourth-year students should spend a mean of 6.5 months doing clinical rotations (range 1–10, $SD = 1.91$). They recommended highest academic quartile students apply to a median of 10 programs (range 1–30) and lowest quartile students apply to 15 programs (range 3–100). Top recommendations involved maximizing student competitiveness, valuing program fit over reputation, and recognizing key decision points in the application process.

Conclusions Undergraduate medical advisors recommended specific strategies to enhance students' competitiveness in the Match and to prepare them for residency. The results can inform program directors and encourage dialogue between undergraduate medical education and graduate medical education on how to best utilize the fourth year.

Introduction

The transition period from student to resident is a critical juncture bridging undergraduate medical education and graduate medical education. Residency program directors (PDs) expect entering interns to possess specific skills, and medical schools are tasked to guide students fulfilling diverse career paths and to prepare them for residency. Yet, viewpoints differ on how best to structure the final year of medical school. Some PDs desire strengthening of practical skills,¹ some call for its truncation,² and others encourage individualized exploration of research, service, or other areas.^{3,4} Medical students use the fourth year to master skills needed for residency, to fulfill personal needs, and to explore topics and practice settings.⁵ They may use this time to increase their chances of

succeeding in an increasingly competitive Match.^{5–10} Such strategies could include applying to a larger number of programs, doing “away” rotations at desired programs, or performing well in key rotations.

Little is known about the advice fourth-year medical students receive from their advisors. Understanding the nature of this advice could contribute to improving dialogue between undergraduate medical education and graduate medical education on this critical transition period. The purpose of this study was to describe recommendations given to medical students in their preparation to apply to internal medicine residencies, and in the navigation of fourth-year schedules and residency application strategies. Comparing results to known PD attitudes may be a first step in efforts to maximize the efficacy of the fourth year, and to achieve a more seamless professional transition.

Methods

In June 2013, the Clerkship Directors in Internal Medicine (CDIM) conducted its annual online confi-

DOI: <http://dx.doi.org/10.4300/JGME-D-14-00552.1>

Editor's Note: The online version of this article contains the student advising items from the 2013 Clerkship Directors in Internal Medicine Survey.

dential survey of US and Canadian member medical schools. The designated clerkship director (CD) from each member medical school was invited by e-mail to participate. Nonresponders were contacted up to 3 times by e-mail and once by telephone.

Of a total of 68 items on the CDIM survey, 11 related to medical student advising (provided as online supplemental material). Items were developed after we put together a literature review and had a discussion with experienced medical educators who worked closely with students and residents. A subcommittee of the CDIM Research Committee, consisting of CDs, many of whom advised students, performed multiple iterative rounds of editing for construct and content validity.¹¹ The survey was piloted by the CDIM Council.

The survey asked whether CDs served as advisors to medical students planning to apply to internal medicine residencies, and if so, what were their recommendations on selecting fourth-year courses, the minimum number of programs students in the highest and lowest academic quartiles should apply to, and their advising experience (length of time, number of student advisees). Two open-ended questions sought to explore advice regarding away rotations and overall top recommendations: “What are the top 2 reasons why you would advise students to take an away rotation?” and “What are your 2 to 3 most important recommendations for students applying to 3-year internal medicine residency programs?”

The Institutional Review Board at Case Western Reserve University approved the project.

Statistical analysis primarily involved descriptive statistics. We used Wilcoxon rank sum tests to test the association between CD advising experience (number of students advised per year, length of time advising) and advice given. Spearman correlation statistics were calculated to examine the relationship between the number of recommended program applications and CD advising experience. For the open-ended questions, responses were read and analyzed independently by 2 investigators following principles of content analysis.¹² A master codebook was generated through consensus.¹² Investigators independently applied codes to data and then peer reviewed coding. Disagreements were resolved by discussion, or by involving a third investigator. Major themes were determined and representative quotes highlighted. We used SAS version 9.4 (SAS Institute Inc) for statistical analyses, and NVivo 10 for qualitative data management.

Results

The response rate was 76% (94 of 124), and 88% (83 of 94) of the respondents advised fourth-year medical

What was known and gap

Few studies have explored the content of guidance that students receive as they navigate the residency application process.

What is new

Key advisor recommendations for fourth-year medical students planning to apply to internal medicine programs.

Limitations

Use of advisors' self-report of advising, not students' perceptions of advice received.

Bottom line

Frequent recommendations included maximizing student competitiveness, valuing residency program fit, and recognizing key decision points in the application process.

students. TABLE 1 lists respondents' demographic information.

Fourth-Year Course Selection for Students Entering Internal Medicine

Clerkship directors were asked for their fourth-year course recommendations on a 5-point Likert-type scale with additional responses for “not offered” and “required” (TABLE 2). Those who advised more than 20 students ($P = .01$) and those who had advised longer (more than 10 years, $P = .03$) were less likely to recommend taking a rotation in a subspecialty students planned to pursue. Otherwise, there were no differences in recommendations between CDs who had more or less advising experience. Clerkship directors advised students to spend a mean of 6.6 (SD = 1.91) months doing clinical rotations during their fourth year. Nearly half of CDs reported that students had at least some difficulty following their recommendations because of course or position availability.

Away Rotations

Clerkship directors were asked to list their top reasons for recommending an away rotation. The 75 respondents (90%) who completed this portion of the survey generated 127 evaluable comments. Twelve of 75 respondents (16%) offered a negative comment, such as “I do not advise students to take an away rotation.” The remaining comments fell into 3 major themes: broadening a student's educational experience (24 of 75, 32%); allowing a student to become more knowledgeable about a particular program or city (42 of 75, 56%); or attending a program of interest with the expressed or implied possibility that

TABLE 1
Characteristics of Clerkship Director Respondents^a

Characteristic	No. (%)
Sex, male	42 (45)
Age, y	
31–40	18 (19)
41–50	36 (38)
>50	30 (32)
Academic rank	
Assistant professor	19 (20)
Associate professor	41 (44)
Full professor	22 (23)
No. of students advised annually	
2–5	10 (11)
6–10	13 (14)
11–20	21 (22)
>20	38 (40)
Mean years advising	12.2 (SD = 8.58)

^a N = 94.

it might improve a student's chances of matching at that program (52 of 75, 69%; TABLE 3).

Number of Residency Program Applications

The survey asked CDs how many residency programs should be applied to by students who are in the highest and lowest academic quartiles. Seventy-nine of the 83 respondents who advised students (95%) answered this question. The median recommendation was 10 programs for students in the highest quartile

(range 1–30) and 15 programs for students in the lowest quartile (range 3–100).

Clerkship Directors' Overall Top Recommendations/Advice

In response to the question asking CDs for their top 2 to 3 recommendations for fourth-year students entering internal medicine, 69 of 83 respondents (83%) listed 189 recommendations. They addressed 4 main domains: the application packet (10 recommendations); the interview day (17); fourth-year scheduling (29); and program decisions (147), including selecting, applying, and ranking. See the FIGURE for domains of advice with representative quotes.

Within these domains, 3 themes emerged. The first was competitiveness. Clerkship directors emphasized the importance of self-reflection and assessing one's own competitiveness. They spoke of being realistic when applying and ranking programs, but also to include "reaches." They gave advice on increasing a student's competitiveness. Theme 2 encompassed student-centered advice: CDs encouraged students to select a program that was a good fit rather than just because of its reputation or prestige. Many advised students to focus on long-term goals, including a desire for fellowship, important geographic considerations, and happiness in making their program decisions. Theme 3 addressed key decision points in the application and selection process. Clerkship directors identified decisions that students needed to make early on during the residency program application process. Such decisions related to program location and flavor (eg, size and clinical versus academic focus) and the criteria by which

TABLE 2
Strength of Course Recommendations for Students Entering Internal Medicine^a

Course	Strength of Recommendation, ^b Mean (SD)	Required Course, No. (%)	Not Offered, No. (%)
Medicine subinternship	4.84 (0.61)	19 (23)	1 (1)
Critical care	4.39 (0.79)	12 (15)	1 (1)
Medicine specialty	4.01 (0.80)	1 (1)	0 (0)
Emergency medicine	3.75 (0.97)	17 (21)	0 (0)
Intern preparatory rotation (capstone, boot camp)	3.54 (0.92)	9 (11)	10 (13)
Nonmedicine specialty	3.52 (0.89)	1 (1)	0 (0)
Research	2.92 (0.80)	2 (3)	0 (0)
Nonclinical rotation	2.54 (0.81)	3 (4)	1 (1)
Nonmedicine subinternship	2.44 (0.96)	3 (4)	0 (0)

^a N = 94.^b Likert scale is as follows: 1, strongly discourage; 3, neutral; and 5, strongly encourage.

TABLE 3

Clerkship Directors' Comments on Why They Recommend Away Rotations^a

Category of Comment (n)	Representative Quotes
Broadening experience (27)	
Specific exposure (11)	"Train at a program with special expertise that cannot be found at home institution."
General exposure (16)	"To experience the way things work at another institution." "To get a different perspective on how medicine is practiced in different areas of the country or in different hospital settings."
Knowing an institution and/or location better (49)	"If they are interested in finding out if they like the program." "To see if they want to spend 3 years in an institution or city."
Improving chances of matching (83)	
Explicit statement (9)	"Improve the chances of getting an interview and being ranked high at that program."
Geographic restriction (14)	"If they are moving to that city and restricted geographically in terms of where they need to end up."
Specific interest in program (28)	"If they deeply desire to train in a particular program." "Student is strongly interested in a given program and academic record is borderline for matching at that program."
Become known at program (28)	"To become a 'known reliable quantity' to the program's leadership"

^a N = 127 comments.

students would select their top programs. Clerkship directors emphasized students' self-reflection on their particular learning needs and wants in making key decisions.

Discussion

Responding internal medicine CDs believed that the majority of the fourth year should be spent doing

FIGURE

Clerkship Directors' Overall Top Recommendations for Students Entering Internal Medicine

clinical work. They advised students to use their fourth-year curriculum not just to prepare themselves for residency, but also to improve their chances of matching to a desirable program. Much of the advice was not strictly academic. For example, many students were encouraged to broaden horizons, to value happiness as much as reputation, and to maximize their chances for an ultimately satisfying residency match.

We found similar views expressed by other stakeholders, including non-internal medicine residency PDs and fourth-year students themselves. In a survey of multispecialty residency PDs, the most strongly recommended fourth-year courses were an internal medicine subinternship; a critical care rotation; rotations in internal medicine subspecialty areas, emergency medicine, and ambulatory care; and away rotations.¹ One area of inconsistency is subspecialty rotations. In our survey of CDs, the third strongest recommendation was for students to do a medicine subspecialty rotation. In the study above, 83% of PDs recommended that students minimize rotations in their intended specialty, although 50% recommended 1 or more internal medicine rotations.¹ Interestingly, a national survey of PDs in 21 specialties showed that applicants' grades for electives in their chosen specialty ranked third among criteria for candidate selection.¹³ Program directors in other specialties seemed to value internal medicine subspecialty rotations, likely because of their broad applicability to "resident work" in general. Internal medicine PDs valued the acquisition of skills, such as communication, organization, and recognition of acutely ill patients, that can be gained during a subinternship or critical care rotation.¹⁴ Finally, a study of fourth-year students found many of the same goals as the CDs: making their applications for residency more competitive, broadening exposure, refining skills needed for residency, and pursuing emotional and personal needs.⁵

It is important to recognize that CDs' advice was mostly based on perception. Most CDs strongly recommended certain courses, particularly a medicine subinternship and critical care exposure. However, there are few data supporting the effectiveness of any specific course to prepare students for residency. Fourth-year "capstone" or "boot camp" courses are new; their overall contribution to internship readiness remains to be defined. Data from residency boot camps for individuals entering surgery suggest transient benefits in confidence and skills.^{15,16}

While the open-ended question about why advisors might recommend an away rotation was designed to explore the nuances involved in this potential recommendation and not to assess prevalence, 16%

of respondents provided negative comments. A large multispecialty PD survey found that 53% recommended away rotations, primarily for students to learn about a specific program and not necessarily to improve their chances of matching.¹ A retrospective study of 435 medical students applying to all specialties showed no significant correlation between taking an away rotation and matching at a student's first-choice residency program.⁷ Other data from students applying for surgical residency showed no association between doing an away rotation and successful matching at the visited institution.¹⁷ Newer observational data from the 2 most competitive specialties are mixed¹⁰: an analysis of a plastic surgery match showed no effect of taking an away rotation,¹⁸ while the study of an orthopedic surgery match showed a marked positive effect of taking 2 or more away rotations (odds ratio of matching = 60.83, 95% CI 6.08–608.43).¹⁹

In our survey, CDs recommended applying to a median of 10 programs for students in the highest academic quartile and 15 programs for students in the lowest quartile. These numbers are likely affected by the prestige of the medical school and may be different for students applying to more competitive specialties. For US fourth-year medical students entering the internal medicine match, data from the National Resident Matching Program show a slight correlation between the number of programs listed by a student and their likelihood of matching.¹⁰ In 2011, this likelihood ranged from 90% with 1 program listed, to 97% with 10 programs listed, to 98% with 20 programs listed.¹⁰ The US fourth-year medical students who matched in internal medicine entered a mean of 9.6 programs on their match lists.¹⁰

This study has limitations. Advice to applicants in other specialties was not assessed, nor was medical school or targeted residency program prestige. We did not survey other academic advisors for students interested in internal medicine besides CDs. We also did not assess the frequency of recommending an away rotation. Importantly, we measured CDs' self-report of their advice, not students' perceptions of the advice received or student actions on receipt of the advice. All of this limits the ability to generalize from these findings.

Conclusion

Students planning internal medicine careers receive advice to improve their competitiveness as residency applicants, to maximize their readiness for internship through course selection, and to prioritize their future happiness and well-being during the process of

residency selection. Program directors should engage in dialogue with undergraduate medical education advisors to optimize student advice with respect to clinical experience and competitiveness for residency.

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Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

The survey results were presented as an abstract at the Society of General Internal Medicine Annual Meeting in San Diego, California, April 24, 2014.

The authors would like to thank the Alliance for Academic Internal Medicine staff for their instrumental administrative support, the CDIM Research Committee that was chaired by Dr Dario Torre, and the CDIM members who participated.

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Received September 24, 2014; revision received January 25, 2015; accepted March 23, 2015.