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PERSPECTIVE

Practical guidance to advisors of residents on the fellowship selection process

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ABSTRACT

Inability to Match into a fellowship is usually not a reflection of some failure on the part of the resident, but rather a problem of supply and demand. Understanding how to advise residents to maximize their success in an environment with limited spots and limited fellowship faculty resources to perform holistic review remains one of the primary objectives of most residency mentors. Residents can alter the odds in their favor by engaging with local faculty and in national society mentorship programs, performing 'enough' research, building their 'brand,' and concentrating on high quality personal statements.

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Learners, resident mentors and fellowship directors annually engage in the time-consuming and expensive process of selecting residents to enter fellowship, but this process is marred by a lack of evidence-based practices. This is complicated by the compressed timeline of fellowship application in internal medicine. Most residents apply to the fellowship match after 24 months of training. The majority of the residents need the first 6–12 months to adapt to the new health care system and learn the required basic medical knowledge, which means that only 12 months are available to build their portfolio to maximize the match chances. This needs extensive advanced planning, coaching through the residency programs, mentors, and personal connections, making the process more subjective and lacks a systematic, objective approach.

Fellowship programs, like residencies, have seen application inflation, and often have smaller staffs than residencies, which limits their ability to perform holistic application review. One of the few structured data entry fields in ERAS, USMLE step exam scores, will be partially lost to program directors, as Step 1 transitions to a pass/fail rubric. With the loss of this differentiator, residency faculty must understand what the key traits, data, and experiences fellowship directors are seeking so as to maximize their residents' chances of achieving fellowship positions.

1. Understanding the national scene

The 2021 subspecialty match was the largest in the history of the program, continuing a growth trend that began in 2000[1]. In internal medicine specialties, there were approximately 6800 applicants for more than 5300 positions (Figure 1). In the 2021 Match, the specialties with the most numbers of applicants per position were again cardiovascular disease, gastroenterology, hematology and oncology, and pulmonary disease and critical care medicine. From 2016 to 2021, the average number of applications submitted per applicant has steadily increased for all specialties in internal medicine, with the exception of geriatric medicine, increasing competition for the scarce positions [2]. Additionally, for 5 fellowships (cardiology, gastroenterology, hematology and oncology, hospice and palliative medicine, and nephrology) the increase between the 2020 Match and the 2021 Match outstripped all previous years [2]. Three of the five specialties with the highest percentage of positions filled by non-USA (US) citizen international medical graduates (IMG) were in internal medicine (endocrinology, diabetes, and metabolism; nephrology; and hematology and oncology) [1]. While high stakes for all applicants, the fellowship Match has additional implications for IMGs, whose visa status is tied to their employment and training statuses. If they fail to Match, they may be forced to return to their home country, take a job outside of fellowship and wait to apply again until they achieve a Green Card, or take a J-1 waiver position. Advisors therefore need a firm grasp of the odds of a Match, and the potential repercussions of not Matching, particularly for their IMG learners.

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Fellowship	Applicants (Total)	Positions (Total)	%Filled by US Grads (MD+DO)	% Overall Positions Filled	Applicants per Position
Allergy and Immunology	199	146	75.3	99.3	1.36
Cardiovascular Disease	1575	1045	62.6	99.7	1.51
Endocrinology, Diabetes, and Metabolism	396	347	37.3	93.4	1.14
Gastroenterology	895	590	71.6	99.0	1.52
Geriatric Medicine	235	400	59.1	52.0	0.59
Hematology and Oncology	909	638	62.7	100.0	1.42
Hospice and Palliative Medicine	415	409	78.5	85.1	1.01
Infectious Disease	404	416	60.3	87.7	0.97
Nephrology	391	474	38.3	72.8	0.82
Pulmonary Disease and Critical Care Medicine	1023	657	63.3	99.7	1.56
Rheumatology	353	257	62.4	97.3	1.37

Figure 1. Fellowship match summary, 2021 appointments: adapted from NRMP data [1].

2. Clinical research – and how much is necessary

Research shows maturity of thought and clinical curiosity and can be something that will help differentiate their application from others. One of the four most positively associated factors was publication of 3 or more manuscripts (OR 4.7, 99% CI 1.1–20.5; p = 0.007) [3]. A review of the most recent research output metrics of successfully Matched applicants highlights the primacy of significant amounts of scholarly activity, with clear differentiations in volume between those that Matched and those that did not [4]. These numbers also highlight the need for IMGs to perform greater amounts of research to achieve the same positions. (Figure 2)

Fellowship Type	Resident Type	Matched	Unmatched
Cardiology	US MD/DO	9.0/6.1	7.2/2.9
	US-Citizen IMG	13.2	9.7
	IMG	18	12.7
Gastroenterology	US MD/DO	11.2/10.9	10.4/16.3
	US-Citizen IMG	13	10.8
	IMG	21	17.5
Hematology and Oncology	US MD/DO	9.1/7.2	8.0/5.4
	US-Citizen IMG	12.5	4.5
	IMG	16.5	9.6
Pulmonary Disease and Critical Care Medicine	US MD/DO	6.7/6.0	4.6/3.6
	US-Citizen IMG	6.6	8.8
	IMG	10.6	8.7

Figure 2. Total scholarly output per applicant (abstracts, publications, presentations); adapted from NRMP data [3].

An advisor can help the resident plan ahead by mapping out a timeline for completing scholarly projects in time for submission deadlines for the national meetings of the intended specialty. This timeline should take into account the IRB process, with which a resident is unlikely to be familiar, at least initially. There are also a number of low cost scholarly project options with minimal IRB involvement that a resident can partake in if time is short [5]. Clinical vignettes, QI projects, national database mining, and local database mining can all generally be done via exemption by the IRB. Retrospective observational studies, for example, are an area of emerging publication interest. The Agency for Healthcare Research and Quality (AHRQ) databases e.g., the National Inpatient Sample (NIS) and the Nationwide Readmissions Database (NRD) are commonly used in researching rare conditions or special populations where getting a large sample size is problematic. Residents may also competitively apply for access to societal databases e.g., American College of Cardiology (ACC) National Cardiovascular Data Registry (NCDR, American Heart Association (AHA) Get With The Guidelines, etc. [5] Residents are rarely involved in multicenter clinical trials or prospective studies because of the time factor; helping residents understand that some of their ideas are untenable is a valuable intervention, even if it is uncomfortable for the advisor [6,7]. Achieving working knowledge of basic statistical analysis is beneficial, and will enable the resident to achieve a greater mastery of study design and interpretation. Learning such skills will increase the publication rate of the trainees, as lack of access to statistical support is a commonly cited barrier [8]. Too many incomplete projects suggest lack of focus and will detract from an applicant's candidacy.

3. Clinical experiences and audition rotations

There is little research on the effectiveness of resident audition electives for fellowship. As per recent survey, the 3 most important factors in selecting applicants for interview: evidence of professionalism, the Residency Performance Evaluation (PD LOR), and LORs from those within the specialty. Additionally, the 3 most important factors in ranking applicants were interview day interactions with faculty and trainees, interpersonal skills, and evidence of professionalism. The major factors associated with success in the Cardiology Match were the declaration of intention to pursue cardiology early in training, the completion of a cardiology elective in the home institution, the score on the cardiology portion of the PGY-2 ITE, and the aforementioned publication of at least 3 manuscripts [3]. Of note, however, is that audition rotations did not have an effect.

In the UME literature, medical students, other than in emergency medicine, where it is required, do not appear to derive benefit in Match rates from audition electives. For example, in a general surgery study, 56% of students complete at least one audition elective, but only a third Matched at the location of their audition elective [9,1011]. The authors hypothesized that the 'dirty laundry' effect was responsible, i.e., since there are a limited number of slots available to do audition rotations, the programs will judge by other things beyond clinical performance, but should you do a clinical elective at the facility, they will know all the good – and bad – - about the student.

With the absence of audition rotations during the COVID pandemic occurring simultaneously with the largest ever Subspecialty Match, the value of the audition rotation is an open question. In summary, there is little evidence to suggest audition rotation will achieve the goal of improving a candidate's chance to Match in the specialty.

4. Building their 'brand'

While little data exists in other fields, the factor that rated as the most important positive predictor of Matching into the specialty of cardiology was the successful performance of a local elective, i.e., doing well in the rotation at the home institution [3]. From a scheduling standpoint, residents should schedule their subspecialty electives earlier rather than later to give them the exposure that could help consolidate or change their mind about pursuing a particular fellowship. However, residents also need to be wary of doing electives too early during their intern year in their ultimate specialty goal, as they want to have enough experience to impress on the rotation.

Performing well on the in-house rotation is not in and of itself enough to demonstrate engagement. Residents should be advised to attend their institution's specialty conferences, if they are held in the desired specialty, to facilitate building relationships with faculty that will translate into stronger letters of recommendation and promoters within the program [12]. This is especially important as these letters of recommendation consistently rate as important factors for fellowship interview selection across many disciplines [13–17]. During the second half of intern year and certainly by the first quarter of PGY-2, residents should set up meetings with the local fellowship director and key faculty to express interest, ask for advice, and seek mentorship.

While the utility of away rotations has been questioned, it is of value for residents to market their skills and foster relationships in other health systems. During early training, residents should connecting with a mentor from another institution through the subspecialty society's mentorship program [12]. Residents should attend (ideally to present their scholarly work) national meetings to network with fellows and attendings at programs in which they may be interested. These connections provide insight into the culture at different fellowship programs and also provide an advocate within

the program without putting the resident at risk of suffering from the 'dirty laundry' effect.

5. Personal statements

Given the number of candidates that need to be reviewed and the limited resources available to read through the applications, personal statements should be no more than 1 page in length. The content of the personal statement should not be a restatement of what was in the curriculum vitae, which is in ERAS, and easily accessible to the program director. The personal statement should indicate self-reflection and the capacity for growth. If research is mentioned, the statement should reflect what the applicant liked or did not like about the research and the rationale for those statements, as well as relating the research to the candidate's future career in the specialty. If a life event is mentioned, it too should point to how it relates to specialty choice and career path. Applicants should embrace failure – failing and then overcoming the failure is a powerful statement about an applicant's ability to accept feedback, commit to lifelong-learning, and engage in self-reflection. There are a number of useful links freely available to assist residents in the writing of their personal statement, e.g.,: https://designcenter.uiowa.edu/editing-services/cv-tips-residents/tips-writing-fellowship-application-personal-statement [18].

6. Conclusions

Inability to Match into a fellowship is usually not a reflection of some failure on the part of the resident, but rather a problem of supply and demand. Understanding how to advise residents to maximize their success in an environment with limited spots and limited fellowship faculty resources to perform holistic review remains one of the primary objectives of most residency mentors. Residents can alter the odds in their favor by engaging with local faculty and in national society mentorship programs, performing 'enough' research, building their 'brand,' and concentrating on high quality personal statements.

Disclosure statement

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