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## Medical Student Forum

### RANKING PROGRAMS: MEDICAL STUDENT STRATEGIES

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**Abstract—Background:** Selecting a training program is one of the most challenging choices an applicant to the Match has to make. **Discussion:** To make an informed decision, applicants should do a comprehensive research and carefully plan their upcoming steps. Factors that might influence the applicants' decision include geography, program reputation, specific areas of academic focus, subspecialty interests, university-versus community-based training, length of training and interest in combined programs. Such information can be gathered from published material, websites, and personal advice (from faculty, residents and advisors). This process is time-consuming and stressful. **Conclusion:** Therefore, in this article we elaborate on the above to facilitate this process for applicants. © 2019 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

**Keywords—**match; NRMP; residency; medical student; emergency medicine; applicant

#### INTRODUCTION

Aside from the difficult task of choosing a medical specialty, possibly the next most arduous task is selecting a training program. Only a fortunate few know where they want to train. For most, this process is time-consuming

and stressful. For that reason, applicants should begin by deciding on geographic preferences and limitations; gathering solid information about prospective programs; choosing between community, public hospital, and academic training settings; considering pros and cons between 3 and 4 years of training; as well as deciding if they have any subspecialty interests (e.g., toxicology, emergency medical services [EMS], pediatrics).

#### DISCUSSION

Most medical students gather program information from multiple sources, including program brochures, Internet websites, and word-of-mouth reports from residents and faculty mentors. Onsite clinical rotations remain the best method to learn about specific training programs. However, it is impossible to rotate through all potential sites. Instead, published and web-based program information will be most useful in familiarizing applicants with a program's main characteristics and academic focus. Items such as curriculum, patient volume and acuity levels, faculty qualifications and research interests, and faculty to resident ratios are typically available. Information on fellowship programs and peripheral resources, such as simulation training centers and procedure laboratories, are usually described as well. Brochures and websites, however, tend to lack subjective

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information that may be helpful in creating one's preference list, such as resident satisfaction with their training experience. Because it is difficult to interview at all of the programs that applicants might be interested in, they should search for facts to make sure they do not pass up the program of their dreams.

A very important aspect of assessing the strength of a program is its accreditation status. Accreditation is granted by the Accreditation Council for Graduate Medical Education (ACGME). The Residency Review Committee for Emergency Medicine (RRC-EM), which is an ACGME committee, visits each program every 2–5 years and conducts a detailed evaluation. Based on the RRC's findings and recommendations, the ACGME awards accreditation in one of four categories: provisional accreditation (given to all accredited new programs for an initial 1–3 years), full accreditation (given to accredited programs for 2–5 years after the first provisional period), continued full accreditation (given to accredited programs for 2–5 years after initial full accreditation), and probation (indicating serious problems with compliance with training guidelines).

In general, longer periods of accreditation suggest more confidence on the part of the ACGME in the ability of the program to provide education in compliance with training guidelines. Applicants should be well informed about a program's accreditation status, either through noting this in the published or web-based material or by inquiring at the time of interview. The vast majority of EM training programs are fully accredited in the first three categories mentioned.

Word-of-mouth information from fellow students or EM residents is another useful way to gain insight about a program, but can lack important aspects needed for a well-informed decision. It is important to remember that this information is merely personal opinion and may be based on very limited interactions with a program, its teaching staff, or residents. Discussing programs of interest with trusted EM faculty members is often considered more valuable because they may be better able to consider your personal "wish list" of needs in your future training program. In general, EM faculty are more informed about important issues related to EM residency training and will have valuable insight into the features of an excellent program. Just like opinions can vary among student colleagues and EM residents, faculty opinions can also vary considerably regarding individual programs. These differences can stem from several reasons, including how they value different components of their own training experience, the type of program in which they trained (county- vs. university- vs. community-based), their current academic interests, and the type of department in which they currently work. Most residents and faculty will welcome questions about what their pro-

grams have to offer. Therefore, applicants should make effort to verify items of particular interest or concern that were learned by word-of-mouth.

### *The Decision Tree*

Each applicant develops his or her own selection criteria. For many, this decision starts simply with geography. Significant others often have an impact on this process. Fortunately, there are excellent accredited EM programs in almost every geographic setting in the United States. In fact, several studies assessed the factors that affect residency rank listing. Those showed that geographic factors were among the most important considerations among residency applicants, including EM (1–3).

Ranking programs in a best-to-worse manner is a highly subjective exercise. A program's individual academic strengths, for example, the presence of a level I trauma center or a strong medical toxicology or aeromedical department, are more concrete and allow applicants to objectively assess and individualize. For those with interests in particular areas of EM (e.g., toxicology, EMS, ultrasound, pediatrics), diligence in assessing a program's level of involvement is important. One strategy to assess the academic focus of a program is to do a MEDLINE search of the program faculty to compare the level of concentrated scholarly activity produced by the group. In addition to assessing the volume and focus of the faculty's research activity, this strategy can help applicants generate intelligent questions for interview day.

### *Training: 3 vs. 4 Years*

Another point to consider is 3- vs. 4-year curriculums available for residency training. The vast majority of allopathic training programs use the postgraduate year (PGY) 1–3 format (3-year program). Historically, 4-year programs followed one of two possible formats: the PGY1–4 and PGY2–4 formats. The PGY2–4 program format is a 4-year program that requires a PGY1 internship year (usually medicine or surgery) prior to beginning the EM residency. However, the PGY2–4 format became obsolete in 2011–2012. Yet, 25 residents are still completing their PGY2–4 program format (4). Table 1 displays the number of programs, ACGME-approved positions and PGY1 residents in both the PGY1–3 and PGY1–4 formats (4).

There are many opinions about the ideal training format, but it is ultimately a personal decision for an applicant. The obvious advantage to a 3-year program is shorter duration of training and thus a quicker path to independent practice or additional fellowship training. There are no data to suggest that the additional year of training improves clinical skills for physicians (5). One

**Table 1. Number of Programs, ACGME-Approved Positions and PGY1 Residents in Both the PGY1–3 and PGY1–4 Formats (4)**

Format	Programs, n (%)	ACGME-Approved Positions, n	PGY1 Residents, n
PGY1–3	165 (75)	1,826	1,758
PGY1–4	56 (25)	674	630
Total	221 (100)	2,500	2,388

ACGME = Accreditation Council for Graduate Medical Education; PGY = postgraduate year.

might think the shorter format would make the decision to complete an EM subspecialty fellowship more likely. Yet Lubavin et al. showed that residents graduating from PGY1–3 programs were, in fact, less likely to complete fellowships (4.3%) than those from PGY2–4 (5.6%) and PGY1–4 (8.6%) programs (6). One potential disadvantage of a 3-year program is that departments with 4-year residency programs will likely not be able to hire a fresh graduate from a 3-year program without an additional year of training, such as a fellowship.

Some feel that PGY1–4 programs offer the resident a longer period during which skills can be developed with faculty input and supervision. Also, in some 4-year programs, the final year of training is a time when senior residents function as junior faculty. If a future teaching position is desired, some academic/university programs may view PGY1–4 training as preferable. Neacy et al. reported that residents in 4-year programs have a greater interest in academic careers compared to residents in 3-year programs (7).

In addition to 3- and 4-year EM residencies, applicants can consider doing a combined program. Combined programs incorporate the residency training requirements of EM, along with internal medicine, family medicine, or pediatrics, in a 5-year format. Although there are no combined specialty boards, each independent board ensures training and eligibility for dual board certification. Each specialty component of a combined program is separately accredited by the ACGME.

#### *University vs. Public vs. Community Hospitals*

When choosing a residency, applicants should consider whether they learn best by “doing” or by “being taught.” Each of these learning styles has a preferred training environment. There are two ends of the spectrum in EM residency training. On one end are the public hospitals with, as a gross generalization, ample procedural experience, less real-time direct bedside faculty supervision, and less emphasis on the traditional academic approach to research and patient care. Conversely, university-based programs hold research activities in high regard and

provide ample supervision and bedside teaching, but procedural experience can be lacking, as residents from other specialties perform procedures in the ED.

In a university setting, ED staffing is often through a conglomerate of residents from different fields. This is due to the sheer number of both patients and residents in these settings, as well as the need to train residents in all fields to identify and treat emergencies. Programs still exist in which EDs are segregated into specialty-specific areas (e.g., pediatric ED), where non-EM services may be responsible for the major workload. In April 2000, Derlet reported that only 46% of the 124 medical schools in the United States had granted full departmental status to EM, which may contribute to patient care turf battles (8). From a faculty standpoint, the trend is clearly to assign board-certified emergency physicians (EPs) to the attending role, though some areas may still be staffed by non-EPs (i.e., surgeons, obstetricians, and pediatricians). This may lead to conflict between specialists regarding patient care and complicate the training environment.

On a more positive note, university-based medicine remains at the cutting edge of medical care. No other setting envelops the resident in a more fertile atmosphere of information and inquiry. The focus on research in the university arena may benefit those with a strong interest. Also, the frequent interaction with residents from other fields may be of great benefit during difficult medical decision-making. There is also the benefit of potentially more diverse experiences on off-service rotations, as most university programs are housed within tertiary care centers.

University-based programs in large cities often see a unique spectrum of patients, with a greater proportion of high-acuity trauma cases, underserved patients, and patients with diseases of abuse and neglect (e.g., alcoholism, i.v. drug use, and domestic violence). They are also more commonly burn centers, neonatal referral centers, and transplantation centers. This can result in an extremely ill population of patients that account for higher admission rates, and possibly more opportunities for procedural intervention. One potential drawback of this is that most EM graduates will not work in this type of setting after graduation.

Community-based programs have their strengths and weaknesses as well. Community-based hospitals can be both university-affiliated and not. University-affiliated community-based programs could provide the benefits of both models. Many of these programs exist, in part, to meet the needs of the facility and community within which they exist. Although a resident is a contracted employee in both the community-based and university-based systems, a careful look at the hospital administration's dedication to teaching programs is an important factor. In community-based hospital systems where

resident training is a priority, the residents' role as a physician-in-training should ideally take precedence over their responsibilities as employees of the hospital. Their day-to-day activities should be dictated by teaching faculty and tailored to meet their academic needs. Finally, research opportunities are typically less available in a community hospital training program. If this is an important factor in the applicants' decision process, they should address the availability of research work with the program director. Additionally, community-based programs tend to have fewer available number and type of residency slots for the significant others of medical students who have significant others in medicine and plan to participate in the "Couples' Match."

Community-based programs can be great places to train in EM. Due to the limited number of residents at these institutions, competition for patients in the ED is usually not an issue. Also, most community EDs do not segregate patients by specialty needs and patients are usually admitted to private attendings, not other residents. This, as well as the patient presentations and types of pathology diagnosed, more closely parallels postgraduate EM practice in the community, including common complaints like chest pain, fever, and abdominal pain. Penetrating trauma, diseases of abuse/neglect, and complex diseases are usually seen at tertiary care centers (e.g., post-transplantation and oncology). Moreover, residents acquire skills in dealing with consulting and admitting physicians readily in this setting. They quickly learn the art of the "sale," as opposed to the simple handoff to the admitting resident team that occurs at many university settings.

Most community-based program directors are dedicated academicians who share the research ideals of their university counterparts. Many programs have a formal university affiliation and a number have considerable research activity, with ample opportunity to learn the skills of publishing and presenting at academic meetings (9).

The lines between the university- and community-based programs are becoming more and more indistinct. In fact, according to Satran et al., students from both hospital- and community-based settings performed comparably on their objective structured clinical examinations (10). Clearly, programs that properly cross these lines will invariably be counted among the nation's best.

#### *Matching Applicant Qualifications to Program Expectations*

When developing one's list of potential interview sites, applicants must consider their own competitiveness and prospects of successfully matching at each of these programs. Ignoring the reality of one's competitiveness

may result in an insufficient number of interview offers and then limited additional application opportunities due to missed deadlines. Furthermore, there is a risk of not matching or matching at a program that is a poor fit. Assessing one's own competitiveness can be difficult and may require an honest critique from a trusted EM mentor (likely program or associate program director) within the medical school faculty. Highly competitive students will obviously have a wider array of residency choices. For those with average academic progress, the rank list should not only reflect one's top-rated programs, but also programs of interest where a match is less of a gamble. The rank list of the programs you interview at should be based on your desire to be at these programs and less on the program's perceived competitiveness. The idea is to avoid the dreadful Match Day scramble for those who do not match with programs on their list. This is a surefire way to end up someplace where one's training years may turn into a true burden.

However, applicants should keep in mind that competitive programs are not only interested in an applicant's "numbers." They should avoid the tendency to count on or disregard programs based only on their perception of the competitiveness of the programs or their own profile. The self-assessment should consider metrics beyond grades and standardized test scores. This includes the whole "package": scholarly activities, leadership and volunteer experience, research interests, letters of recommendation, and faculty input. Regardless of academic ranking, when it comes to programs of particular interest, applicants should be proactive in projecting the value of their traits. An externship is an excellent way for a program to learn about the full scope of an applicant's attributes.

In certain programs, EM residency slots have become very competitive. Extra time and effort should be applied to programs of high interest where competitiveness is an issue, regardless of one's academic ranking. This could either be in preparation, second visits, externships, or getting to know residents or faculty in the program.

#### *Other Characteristics of Programs*

The age of a training program is a reasonable factor to consider. Programs that have been in existence for more than 10 years may have significant advantages to offer prospective residents. Important battles, both clinical and administrative in nature, will likely have been fought and settled at older programs. Well-established faculty may have influence and contacts at the regional or national level and can use these contacts to help create opportunities for their residents. Older programs also have a large alumni network that can make the post-residency job search much easier. Conversely, new programs may

have young, eager faculty with substantial presence in the clinical arena. Younger program leadership may be more responsive to resident input and requests for change.

The qualifications and overall number of the faculty are important elements. Faculty members with fellowship training, additional subspecialty interests (e.g., pediatric EM, EMS, and toxicology), or with advanced research training (MPH or PhD) are an added attraction to some prospective residents. These resources have the potential to enhance training and keep residents and faculty on the cutting edge. Moreover, residents with interest in these areas will have access to mentors who can guide decisions about fellowship training.

### *What Is Out There?*

The American Board of EM (ABEM) reported that in the academic year 2017–2018, there were 221 ACGME-accredited allopathic EM residency programs. One hundred and sixty-five of the programs have a PGY1–3 format and 56 are PGY1–4 (4,11). As of December 31, 2017, there were 7,384 residents enrolled in these programs and in the 2018 Match, 2,278 PGY1 positions were available (4,11,12). The NRMP data indicates that 18 combined EM programs participated in the 2018 Match in the United States. These included 11 EM/Internal Medicine (IM), 4 EM/Pediatrics, 2 EM/Family Medicine, and 1 EM/Anesthesiology, which offered a total of more than 40 positions (11). All of these allopathic programs participate in the National Resident Matching Program (NRMP) and the Electronic Residency Application System (ERAS). In 2018, there were also 30 recognized osteopathic (DO) EM residencies for graduates of osteopathic medical schools (11,13).

## CONCLUSIONS

Careful planning and research can help more clearly define personal preferences about programs and also increase one's confidence in the Match process. Important aspects of the decision include geography, program reputation, areas of academic focus, university- vs. community-based format, length of training, and combined programs. The practice will vary widely, depending on many parameters, including geography and life experiences (14). After weighing the options, discussion with trusted faculty members will help in fine-tuning one's preference list. Additionally, gathering objective and subjective information about programs of interest using published material, websites, and personal advice and input

will help. Applicants should develop a list of 15–20 choices to submit an application through ERAS. This should result in, optimally, 10–15 interviews from which the applicant should create a rank list. The exact number for both depends on the applicant's competitiveness. As a final point, developing a rank list using the tips provided in this article should guarantee a successful Match.

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