

Preparing for Fellowship in Internal Medicine

Steps for Success with a Focus on Pulmonary and/or Critical Care Programs

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Abstract

This paper outlines specific tips for those applying to pulmonary and/or critical care medicine fellowship training in the United States using the PAIR-Match steps: preparation, application, interview, ranking, and match. Preparation for fellowship begins long before the application process with an assessment of one's long-term goals (to the extent that these are known). The cornerstone of the application is the curriculum vitae, which should highlight applicants' pulmonary and critical care-related experiences and scholarly work. Applicants should obtain letters of recommendation from faculty members who know them well and can write a letter that speaks to their strengths in clinical, scholarly, or leadership areas. The personal statement is an opportunity to share experiences not otherwise shared in the application and is an opportunity to explain

any breaks in training or performance lapses. When selecting programs to which they will apply, applicants should pay close attention to the areas of education and curriculum, clinical experience, scholarly opportunity, and personal factors. Preparing for interviews should include a review of the program at which one is interviewing and development of relevant questions regarding details of the program. The interview day is the applicant's opportunity to see the "personality" of the program by meeting with the program director, faculty, and current fellows and to assess whether the program is a good fit for their goals. Applicants should only rank those programs they are willing to attend, in order of preference; they should be aware that the match process is binding.

Keywords: residency; employment application; education; scholarship

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Resident physicians who choose to pursue fellowship training in pulmonary and/or critical care medicine should be aware of strategies to build a competitive fellowship application and the timing of key components in the fellowship selection process. An organized, well-thought-out approach to the preparation, application, and fellowship selection process is critical and can substantially increase the chances for a successful fellowship match.

The recommendations offered here are adapted for internal medicine-based pulmonary and critical care training in the United States from those published

previously by Madanick and colleagues for gastroenterology training program candidates, including their PAIR-Match (preparation, application, interview, ranking, and match) concept map (Figure 1) (1). Preparation takes place during the first and second year of residency (post-graduate year [PGY]-1 and PGY-2) and includes solid clinical performance on residency rotations and building one's curriculum vitae (CV). The Application phase begins in PGY-2 and extends into early PGY-3. It includes putting together one's Electronic Residency Application Service (ERAS) application,

writing a personal statement, recruiting writers for letters of recommendation, and selecting the programs to which one will apply. The Interview phase occurs during fall of PGY-3, and the Ranking phase takes place in early November of that year. This is followed by Match day in December of PGY-3. Using the concept map helps to provide a coherent and organized approach for applicants to pulmonary and critical care medicine fellowship programs.

These recommendations were compiled by a convenience sample of program directors and associate program directors from across the United States.

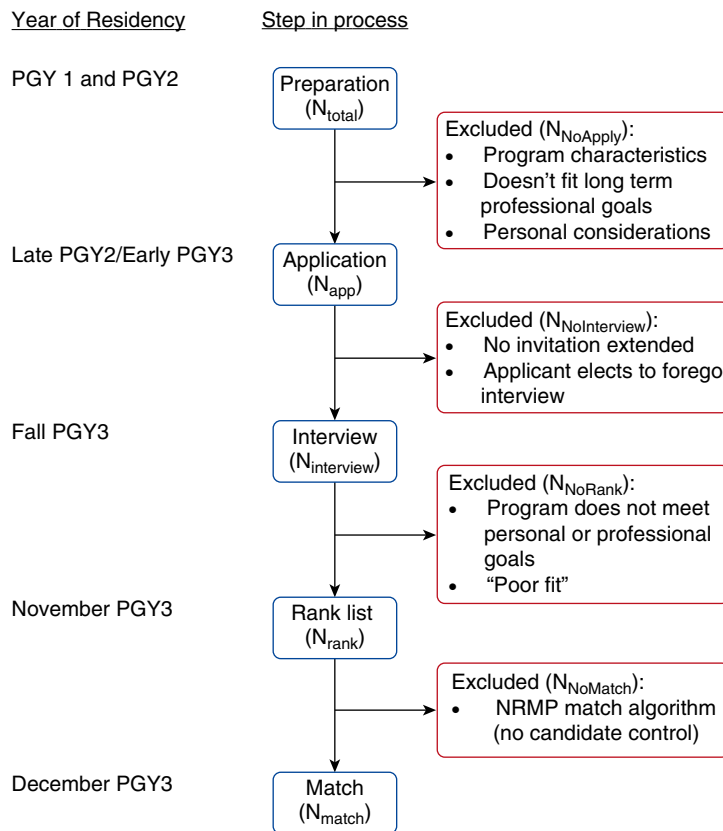


Figure 1. PAIR-Match (preparation, application, interview, ranking, match) flow diagram for Internal Medicine subspecialty fellowships. NRMP = National Resident Matching Program; PGY = post-graduate year. (Adapted by permission from Reference 1.)

Authors were invited to participate to form a geographically diverse representation of pulmonary and/or critical care medicine training programs, and consensus was obtained via online communication and conferencing among the authors. It was then reviewed and endorsed by the Board of Directors of the Association of Pulmonary and Critical Care Medicine Program Directors.

Pulmonary Disease versus Critical Care Medicine versus Pulmonary and Critical Care Medicine

The Accreditation Council for Graduate Medical Education (ACGME) provides three options for internal medicine-based fellowship training in pulmonary disease and/or critical care medicine: pulmonary disease (2), critical care medicine (3), and combined pulmonary disease and critical care medicine (4). Table 1 details the major

differences between these three pathways. The ACGME also outlines options for fellowship training in surgical critical care (5) or anesthesiology critical care (6).

Preparation: A Career-focused Fellowship Preparation Process

Ultimately, a fellowship program will be interested in candidates' long-term career plans as an indication that the applicants' career goals are aligned with the program's training mission and the academic or clinical focus of the division. Establishing short- and long-term goals can help trainees reduce stress, set goals, pursue high-yield scholarly activities (7), and identify those programs best suited to attain the skills necessary to ultimately reach their goals.

Although many applicants may not have completely established their long-term goals, it is helpful to identify potential career

pathways as a way to select the fellowship programs to which one applies (N_{app} in Figure 1). Some programs are focused on developing well-rounded clinicians, whereas others are designed for applicants seeking academic careers as funded investigators or clinician-educators. A prospective applicant who is interested in training opportunities for a physician-scientist may not be best suited for a fellowship program that focuses heavily on clinical training, with little protected time for research. Similarly, a program that provides considerable research time with less clinical time and less emphasis on critical care ultrasound or procedures may be less attractive for a candidate who ultimately desires a clinical career. Regardless of whether or not an applicant has a clearly defined long-term career path, it remains important for the applicant to self-reflect on key topics that can be translated into targeted questions to be asked on the interview day (Table 2).

The Application

The CV details an applicant's academic accomplishments, reflects an applicant's career trajectory, and signals potential future scholarly success. Many program directors (PDs) desire evidence of scholarly work or leadership positions outside of the usual resident duties. An applicant interested in scholarship will be taken more seriously if he or she has evidence on their CV of activities in quality improvement, education, or research. Submission of abstracts or case reports to local and national meetings demonstrates initiative and an ability to communicate scholarly work that is often highly prized.

Leadership and local awards, such as Alpha Omega Alpha membership, the Gold Humanism Award, and other local awards (i.e., Intern of the Year), are important to include, as these awards highlight qualities that many PDs desire. Selection as chief medical resident demonstrates leadership and teaching skills and is also often highly valued.

Programs usually require three to four letters of recommendation. Each program may differ slightly in their requirements, but all will desire a letter from the applicant's residency PD, and at least one from a pulmonary or critical care physician.

Table 1. Characteristics of internal medicine–based pulmonary and critical care medicine fellowships (2014 data)

Training Program Type	Length (Minimum Months of Clinical Experience during Fellowship)	Prerequisite Training	No. of Programs	No. of Positions Nationally (14)	Average No. of Applicants per Position (14)	Average No. of Program Applications per Applicant (27)	% of Applicants Who Match into First Choice (14)
Pulmonary diseases	24 mo (12 mo, at least 3 MICU)	IM (2)	12 Allopathic 3 Osteopathic (28)	22	4.3	U.S. graduate: 3.1 International graduate: 5.7	8.4
Critical care medicine (via IM)	12 mo (12 mo, at least 3 MICU) 24 mo (12 mo, at least 3 MICU)	IM residency and fellowship training IM residency only	33 Allopathic 13 Osteopathic* (28)	Unknown*	Unknown*	U.S. graduate: 7.8 International graduate: 11.3	N/A
Critical care medicine (via emergency medicine)	24 mo (12 mo, at least 3 MICU)	Emergency medicine (with prerequisite 6 mo of IM, at least 3 mo of which is MICU) (3)					
Pulmonary and critical care medicine	36 mo (18 clinical, 9 mo of critical care, 9 mo of pulmonary)	IM (4)	142 Allopathic 27 Osteopathic (28)	489	1.5	U.S. graduate: 19.2 International graduate: 47.0	35.9

Definition of abbreviations: IM = internal medicine; MICU = medical intensive care unit; N/A = not applicable.

*Less is known regarding the actual numbers of critical care stand-alone programs and slots because this category of programs does not participate in the National Resident Matching Program. Numbers given are estimates based on the number of programs who participate in Electronic Residency Application Service.

Empiric data suggest that the more quality time a physician spends with a trainee, the better the letter of recommendation, so applicants should solicit letters from faculty with whom they have had considerable clinical or research experience (8). If one has been involved in scholarly activity, it is highly recommended that one letter of recommendation come from the applicant’s primary mentor. Faculty who are well known in the field may carry more weight than other letter writers at some programs, provided the faculty member has sufficient experience with the applicant to write a quality letter.

The personal statement (PS) is the most subjective portion of the application. There is wide variability in how the PS is evaluated among raters, leading some to call into question its objective validity in the application process (9). However, many interviewers use the PS to prepare questions for the interview (10), so including some discussion of life experiences that make one stand out among others is advantageous (11). The PS is also an opportunity to share those experiences an applicant may have had in life or training that are not well represented on the CV. If there are breaks in training or specific issues that can explain a performance lapse (i.e., failed United States Medical Licensing Exam), the applicant should share the reasons and describe corrective steps taken in the PS. It is extremely valuable to have a mentor read the PS with a critical eye; grammar or spelling mistakes portray a lack of attention

to detail and may be seen as a major red flag in the application.

Selecting Programs for Application

Once the applicant’s individual career goals are evaluated, one can begin to closely examine fellowship training programs in light of these goals. Practically, these processes have significant overlap for many candidates. Specifics of an individual’s career goals may change as one gains more understanding of the approach of different training programs and institutions to pulmonary and critical care medicine. Often the program’s website is the most useful place to find this initial information.

Factors to consider when selecting programs to which one will apply include: education and curriculum, clinical experience, scholarly opportunity, and personal factors. These factors can be explored to help focus the applicant’s initial efforts to find programs that are most likely to be a good match for one’s goals. These factors also translate into fellowship details that should be explored during interviews (Table 3). For those fellows who will be training on visas (e.g., J-1 or H1B), program websites will often outline which visas are eligible for their training program (as not all programs are able to accept candidates on visas).

Education and Curriculum

Programs differ in their implementation of educational curricula in ways that may be important to prospective fellows. Some

programs have a heavy schedule of didactic sessions and fellow-led presentations, whereas others limit the number of educational sessions, relying on a self-directed approach to developing subspecialty medical knowledge. The use of simulation-based technology to teach procedures and clinical skills will vary greatly among programs, as will the existence of formal curricula for specialized training (i.e., ultrasound, bronchoscopy). Although none of these educational approaches represent a universally correct or incorrect way of teaching, applicants who know their preferred learning style may benefit from one educational structure over another.

Clinical Experience

Not every training program will offer the same clinical experiences for fellows. Important areas to consider are the size and structure of the intensive care unit, the outpatient clinic, and the local availability of highly specialized patient care services (e.g., extracorporeal membrane oxygenation, interventional pulmonology, and lung transplantation). Programs may vary widely in their exposure to niche areas of pulmonary and critical care medicine depending on the interest of the faculty and the structure of the division. Some common areas of interest to applicants include lung transplant, interventional bronchoscopy, critical care ultrasound, medical simulation training, airway and chest tube management, cystic fibrosis,

Table 2. Interview questions based on career goals

Career Goals	Interview Questions
I think I want to pursue a career as a funded investigator in basic science. OR I think I want to pursue a career as a funded investigator in clinical research. OR I think I want to pursue a career as a funded investigator in education research.	Is mentoring available for my desired and field of interest? Is there adequate research time supported during fellowship? Is there an option for additional fellowship research time post-graduation? If so, is there funding to support this year, or is it contingent on the trainee obtaining funding to support this time? What percent of fellows are grant-funded who have entered academic careers? Are there grant-writing workshops available? How many funded investigators are within the division? Is there an NIH T32 training grant position available? Can fellows pursue an advanced degree in their area of interest (i.e. MPH, MHA, Masters in Clinical Science)?
I think I want to pursue a career as a clinician-educator.	Is there a well-established clinician-educator track? Is a teaching program for clinician-educators available?
I think I want to pursue a career in clinical practice.	Does the program have sound clinical programs, the availability of nonmedical ICUs, and consultants who can support this? What exposure do fellows have to pulmonary subspecialty clinics (pulmonary hypertension, occupational lung disease, cystic fibrosis, etc.)? Are electives available for “away” rotations or rotations in my area of interest to help with career decision making? Will I get adequate training in the procedures I wish to perform when finished? Is there training on medical billing or training on how to run a practice? Is there support for an administrative track, MBA or MPH?

Definition of abbreviations: ICU = intensive care unit; MBA = Master of Business Administration; MHA = Master of Hospital Administration; MPH = Master of Public Health; NIH = National Institutes of Health.

and pulmonary hypertension. Applicants with a specific clinical interest should inquire in detail regarding educational experiences in these areas as well as the success of placement of former fellows in any fellowships in which one is interested (e.g., sleep medicine, lung transplantation, and interventional bronchoscopy).

Scholarly Opportunity

Just as with local clinical factors, the scholarly focus of training programs differs greatly between institutions. Expectations for fellows may include minimal research time, or there may be expectations for scholarly productivity as measured by published peer-reviewed work or grant funding. The program requirements of

the ACGME provide substantial flexibility in individual program scholarly structures (4). Generally, programs will offer anywhere from 6 to 18 months of protected research time in a 3-year pulmonary and critical care fellowship. Depending on the emphasis of the division, many fellowships that are research focused require a fourth year of training. Areas of an institution’s scholarly strength should be evident from the publications and national- and international-level society involvement of the program faculty and fellows. Applicants interested in a career as a physician-scientist should know how many divisional faculty members are funded researchers (e.g., National Institutes of Health [NIH], Veterans Affairs funding) and if the

program has an NIH T32 training grant. Programs with T-32 training grants and multiple funded faculty members provide the fellow with institutional and mentor support that can be important for trainees to transition into independent research careers.

For those applicants desiring a career in academic pulmonary and critical care medicine, the national and international scholarly reputation of the center can be vitally important.

Personal Factors

Trainees who choose subspecialty training identify selection priorities in the area of work-life balance (12, 13). Personal factors to consider may include the desirability of a large or a small city setting, proximity to family, career opportunities for a spouse or partner, and local options for entertainment and recreation. Although fellowship training is of a limited duration, these personal factors are often very important. Careful personal reflection is always warranted to consider how these factors will impact one’s personal life.

A full list of the pulmonary and critical care programs participating in the ERAS each year is found at <https://services.aamc.org/eras/erasstats/par/index.cfm>. Most programs’ websites can be accessed from this page and provide a useful way to gain an overview of many of the factors above. Searching for a city’s Chamber of Commerce website can help an applicant learn more about visiting and living in a particular area. Personal contacts or references are invaluable during this time, especially as one considers the personal impact of a particular training program on their life.

Selecting the number of programs for application is a difficult question that encompasses one’s academic history, the quality of the application, geographic factors, and career plans. Local mentors in pulmonary and critical care medicine or one’s residency PD can be a guide, but there are no hard numbers or rules; it is a decision of personal preference.

The Interview: Putting Your Best Foot Forward

Due to the competitiveness of the specialty (14), the quality of the application is very important. A well-written application that

Table 3. Fellowship details to understand during the application/interview process ($N_{\text{interview}}$ from Figure 1)**Education and curriculum**

- What is the conference schedule and are these sessions prioritized for fellows on service?
- Is there a simulation center? How is simulation used in training?
- Are there formal curricula for procedure training?
- How are fellows prepared for board exams?
- What are the board passage rates?

Clinical experience

- What is the size and structure of ICU? Is it closed or open?
- What is the size and structure of outpatient clinic? How many patients do fellows see in a half-day?
- Is there availability of all needed ancillary/consultative services (thoracic surgery, transplant, etc.)?
- What procedures are fellows expected to perform? Which are handled by other services?
- Are there other fellowships like sleep or interventional bronchoscopy within the division? If so, how does that affect fellow training?
- Is there adequate exposure to areas of interest (i.e., cystic fibrosis, chest tube management, etc.)?

Scholarly opportunity

- What are fellows' expectations for scholarly output?
- How much research time is required for fellows? How much is available?
- Is a fourth year of fellowship an option?
- What scholarly work has been done/published by recent fellows?
- Do fellows obtain grant funding?
- What national meetings have fellows presented at recently?
- Is there a formal mentoring program?

Personal factors

- Are the current fellows generally happy? Do they socialize together and with faculty outside of the hospital?
- What is the sex and ethnic mix of the trainees?
- What is the city like?
- How are the schools?
- Would my spouse be happy here?
- Could I see myself living here?
- What types of careers have recent graduates pursued?

Definition of abbreviation: ICU = intensive care unit.

Not all questions will be applicable to all applicants, depending on their career goals and life circumstances.

describes one's scholarly activity and clearly stated career goals provides the opportunity for an applicant to distinguish him- or herself as a unique and desirable fellow. Early submission of one's application to ERAS demonstrates the ability to complete paperwork in a timely and efficient manner; additionally, programs may fill limited interview slots early. Once one has secured an interview, the interview process can be divided into three stages: (1) preparation for the interview, (2) the interview day, and (3) after the interview.

Preparation for the Interview

Preparation is essential for a successful interview. Research each program to become familiar with the division's research and clinical programs and the fellowship training priorities (15, 16). As a starting point, visit the program's website. Knowledge about the division, faculty, and fellowship allows the applicant to

ask program-specific questions during the interview and provides the opportunity to request a meeting with faculty whose interests align with the applicant's. It is worthwhile to be aware of the research interests and published work of the program faculty; this can help to prepare thoughtful and relevant questions. Preparing questions geared toward one's priorities for training experiences, clinical interests, and long-term career goals will allow for a more informed decision when ranking programs (Table 2) (15, 16).

The applicant should be prepared to discuss all elements of the application; in particular, one should be able to describe any research, quality improvement, or educational projects in detail as well as one's specific role in the work. Prepare answers to common questions and questions unique to one's stated goals. A detailed list of frequently encountered questions in residency interviews, many of which are

relevant to fellowship, has been published (15, 17) and is a good place to start. An intensive preparation process (including mock interview) will help applicants to have a more successful and informative interview.

The Interview Day

The applicant is interviewing the program as much as the program is interviewing the applicant (1, 15). The interview is a critical step in the ranking process for both. The timing of specific program interviews will vary for each applicant but should be based on the following: (1) interviewing is a skill that improves with practice (18), (2) most applicants are nervous during the first few interviews, and (3) many applicants develop interview fatigue by the end of the interview season. Thus, it is advisable to allow for practice interviews and schedule interviews at the applicant's top choices in the middle of the interview season (1, 15, 16, 18).

The interview day is designed for the program to inform the applicant of its strengths, training opportunities, and mission. It provides the PD, faculty, and fellows the ability to interact with the applicant, evaluate the applicant's strengths, clarify involvement in scholarly activity, and assess compatibility with the fellowship training program. First impressions matter: it is important to arrive on time, exhibit a positive attitude, be polite to staff, and remain engaged throughout the day (19).

From the applicant's perspective, this is the best time to assess if the program is a "good fit." Meeting with the PD is an extremely important part of the interview. The PD sets the tone of the training program and establishes a learning environment designed to meet the academic, clinical, and individual needs of the fellows (1). During the interview, it is important to ask the PD about mentorship, career development, and availability of institutional resources. For example, applicants with an interest in a research career might ask about a program's success with training physician-scientists and the availability of training grants such as the NIH T32. Applicants desiring a career as a clinician-educator should ask about opportunities to teach and the availability of additional training to become a successful educator. Those interested in clinical research should ask about formal

training in this area and if the department has available funding/availability for further masters-level training (e.g., epidemiology/biostatistics or health policy). Specific questions delineate training interests to the program and allow the PD to provide information specifically related to the applicant's long-term goals.

It is equally important for applicants to meet with current fellows and hear their perspective on the training, academic opportunities, and quality of life. Fellows provide a unique insight into the training program, including the PD's level of involvement and support of fellow education. Many medical school graduates put high priority on the morale of the training program (12, 20, 21), and fellow interactions will be the best marker of this variable. Applicants should observe and take note of fellow-to-fellow, fellow-to-faculty, and fellow-to-PD interactions.

After the Interview

Immediately after the interview, applicants should write a description of general impressions and pros and cons about each program and refer to these notes when creating their rank lists. After the interview, some applicants choose to write a well-written, timely, and program-specific thank you note or e-mail (although this is not required) (1, 19).

In the end, the applicant should strive for an interview that informs his or her

decision, distinguishes him or her from the other applicants, and leaves the program with an impression that will be remembered favorably during the ranking process.

Ranking Strategies

The simplest and best advice is to rank only those programs one is willing to attend in the order one would like to attend them (22). Whether or not one is likely to match at a program should not influence an applicant's rank order list (ROL). For those applicants who are pursuing a couples' match, there are nuances to the process that should be explored at length before submitting their ROL (23).

Applicants should be sure to input and certify their ROL well before the deadline (typically early November). In 2014, only 35.9% of applicants to pulmonary and critical care medicine programs matched at their first choice (Table 1) (14). Historical data from the National Resident Matching Program (NRMP) suggest the longer one's ROL, the greater the likelihood of matching (22). As noted above, it becomes very important to include programs where individual career goals can be met alongside personal happiness.

An important policy note should be known by all fellowship applicants when solicited for information regarding their ROL: the applicant may volunteer where he or she has applied and their interest in

a specific program, but this is not required. PDs cannot require this information to be disclosed, as this violates NRMP policy (24, 25). Any violations of this rule should be reported to the NRMP.

The Match

Match day occurs in early to mid-December. It is important to remember that the NRMP match agreement is binding, and applicants commit to attending the matched program even if it is not their first choice. Waivers to this agreement are obtained only at the discretion of the NRMP, and details of the waiver process can be obtained on the NRMP's website (26).

Conclusions

The process of preparing for and selecting a fellowship training program in any specialty is one that should begin as early in residency as possible. Although each fellowship applicant's process and decisional factors will be unique, all applicants should focus the process on their long-term goals to optimize opportunity for a successful match in pulmonary disease and critical care medicine. ■

Author disclosures are available with the text of this article at www.atsjournals.org.

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