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Medical Student Forum

COMBINED RESIDENCY PROGRAMS IN EMERGENCY MEDICINE

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Abstract—There are currently 5 combined residencies in emergency medicine (EM), namely EM/pediatrics, EM/internal medicine, EM/internal medicine/critical care, EM/family medicine and EM/anesthesiology. These combined programs vary from 5–6 years in length. Like categorical programs, the decision to enter a 5- or 6-year program should be an informed and comprehensive decision. We describe the history and current status of the combined EM programs, discuss the process of applying to a combined EM program, describe the life of combined EM residents, and explore common career opportunities available to combined EM program graduates. © 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/>).

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INTRODUCTION

There are currently 5 combined residencies in emergency medicine (EM): EM/pediatrics, EM/internal med-

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icine, EM/internal medicine/critical care, EM/family medicine, and EM/anesthesiology. These combined programs vary from 5–6 years in length (1). Graduates of combined training programs are uniquely positioned to deliver patient care across the continuum of illness from acute emergency department (ED) resuscitation to outpatient primary care. In recent years, graduates of combined programs have had increasing success in securing careers in which they practice both specialties. Furthermore, combined training is ideal for rural and international practice environments, where resources may be limited. Like categorical EM programs, the decision to enter a combined training program should be an informed and comprehensive decision. The following article describes the history and current status of combined EM programs, discusses the process of applying to a combined EM program, describes the life of combined EM residents, and highlights common career opportunities for combined EM graduates.

DISCUSSION

The History of Combined Emergency Medicine Programs

Recognizing the overlap in training in EM and other select training programs, the American Board of

Emergency Medicine (ABEM) reached agreements with the American Board of Pediatrics and the American Board of Internal Medicine (ABIM) to create combined residency training programs in EM/pediatrics (EM/Peds) and EM/internal medicine (EM/IM), respectively. These new 5-year training programs provided a path for board certification in both specialties without requiring the completion of separate categorical training programs. In 1999, ABEM, ABIM, and the ABIM Critical Care Medicine Subspecialty Committee announced the creation of a novel 6-year combined training program in EM/IM/critical care (EM/IM/CC). Graduates of this 6-year track are eligible for triple certification in EM, IM, and CC through ABIM. In 2005, ABEM reached a similar agreement with the American Board of Family Medicine for the creation of a 5-year training program in EM/family medicine (EM/FM). If the categorical EM or FM training at the respective institution is 4 years, the EM/FM combined program will be 6 years in length. In 2016, ABEM reached a similar agreement with the American Board of Anesthesiology for the establishment of a 5- or 6-year training program in EM/anesthesiology. The duration of these EM/anesthesiology programs is dependent on whether the respective institution offers a 3- or 4-year categorical EM training program (2–4).

Table 1 summarizes the total numbers of residents enrolled in combined training programs during the calendar year 2017, as well as the initial year and length of training for each program (2–5).

Combined EM residency training programs continue to be extremely popular for residents with the specific career goals discussed below. As a result, new programs are being considered continuously.

The Accreditation Council for Graduate Medical Education's (ACGME) website encompasses a feature that allows for an Advanced Program Search. Using this feature, 26 combined EM programs were identified in the United States (6). These include 1 EM/anesthesiology program, 13 EM/IM programs, 5 EM/IM/CC programs, 4 EM/Peds programs, and 3 EM/FM programs. Table 2 lists the institutions offering the combined EM residency training programs (6). Of those, 18 programs participated in the 2018 National Resident Matching Program (NRMP Match), namely 1 EM/anesthesiology program, 11 EM/IM programs, 4 EM/Peds programs, and 2 EM/FM programs (7). Table 3 summarizes the number of programs, positions, and applicants in the 2018 NRMP Match, as well as the acceptance rate (%) for each of the combined EM residency programs (7).

At present, there is no direct application is required for the EM/IM/CC combined residency programs. Instead, applicants apply to the EM/IM program at the same institution they wish to pursue training in EM/IM/CC. Once accepted to the EM/IM program, residents can then trans-

fer from the EM/IM program to the EM/IM/CC program, provided they meet the individual institution's requirements for transfer into the 6-year program. Residents must transfer from a previous training in an EM/IM program to an EM/IM/CC program by the beginning of their fifth year, but most commonly do so by the end of their third year (8,9).

Should You Consider Applying to a Combined Program?

Combined programs offer an outstanding variety of experiences and in-depth training. More importantly, there is no standard profile for a candidate applying to a combined residency program. Applicants who ultimately match in combined programs come from broad backgrounds and have varied interests. Medical students considering a combined program should clearly have a passion for both disciplines and a genuine interest in practicing both specialties during their career. Applicants to combined programs report overwhelmingly positive experiences during medical school rotations in each specialty. In general, combined applicants love the excitement and pace of the ED, with its emphasis on rapid stabilization and life-saving procedures. At the same time, combined applicants enjoy creating thorough and comprehensive differential diagnoses for a chief complaint or clinical finding. Successful combined program residents also enjoy the evaluation and management of patients in both inpatient and outpatient settings—settings that are integral to training in IM, Peds, and FM. Combined programs can also serve to jumpstart a leadership career in EM, IM, FM, anesthesiology, or CC. Finally, the longevity of a combined program can allow the resident to develop an academic niche.

The decision to apply to a combined residency program must be considered thoroughly. A 5- or 6-year training program is lengthy and difficult for the resident who is unsure and not fully committed. The inability to decide between 2 disciplines, seeking the prestige of being double-boarded, or the desire to “be a better EM doctor” are not valid reasons to pursue a combined residency program. For the undecided applicant, it is better to determine which field inspires the primary passion and then apply to the categorical program in that specialty. Residents completing a categorical residency program will obtain the tools, knowledge, and opportunities to become excellent physicians. While the additional residency training in the combined programs offers expertise in a wider arena, it does not necessarily equate to becoming a better physician.

Some medical students are advised to apply to combined programs if it is felt that they need “slower-paced” training in EM. It is important to remember that combined programs contain all the core rotations of their parent categorical programs. As such, the learning curve

Table 1. Total Numbers of Residents in 2017, Initial Year, and Length of Training for Each of the Combined Emergency Medicine Residency Programs

Program	Length of Training (y)*	Launching Year*	Total No. of Residents Enrolled in 2017†
Emergency medicine/anesthesiology	5 or 6	2016	NA‡
Emergency medicine/family medicine	5 or 6	2005§	24
Emergency medicine/internal medicine/ critical care medicine	6	1999	20
Emergency medicine/pediatrics	5	1998	48
Emergency medicine/internal medicine	5	1989	142

NA = not applicable.

* Data from the American Board of Emergency Medicine (2).

† Data from Nelson et al. (5).

‡ No residents were enrolled yet in 2017.

§ Data from Strobel et al. (3).

|| Data from Cattoi (4).

is often steeper than that in noncombined residencies. Residents currently enrolled in combined programs describe that they enjoy the challenge and feel that the additional training is rewarding.

What to Look for in a Combined Program?

Given the limited number of first-year positions, combined programs are competitive. It is imperative to thoroughly evaluate each combined program with specific attention to academic and community institutions, inno-

vative curricula, research and teaching opportunities, the “personalities” of current combined residents, career choices of recent graduates, and location. Having an advisor can assist medical students in the process of assessment and decision making (10).

Deciding between programs at academic medical centers and those in community medical centers can be challenging. In general, the applicant interested in a career in academic medicine should strongly consider programs at academic institutions. While clinical training can be outstanding at either academic or community hospitals,

Table 2. Institutions Offering Combined Emergency Medicine Residency Training*

Program and Location	EM/IM	EM/Peds	EM/FM	EM/IM/CC	EM/Anesthesiology
Ohio State University Hospital	X				
Christiana Care Health Services, Newark, Delaware	X				
Christiana Care Health Services, Wilmington, Delaware			X		
Vidant Medical Center/East Carolina University, Greenville, North Carolina	X			X	
Hennepin Healthcare, Minneapolis, Minnesota	X			X	
Henry Ford Hospital/Wayne State University, Detroit, Michigan	X			X	
Indiana University School of Medicine/Methodist Hospital, Indianapolis, Indiana		X			
Jefferson Health Northeast, Philadelphia, Pennsylvania	X		X		
Louisiana State University, New Orleans, Louisiana	X	X			
Louisiana State University, Shreveport, Louisiana			X		
Zucker School of Medicine at Hofstra/Northwell, New Hyde Park, New York	X			X	
SUNY Health Science Center, Brooklyn, New York	X				
University of Arizona, Tucson, Arizona		X			
University of Illinois College of Medicine at Chicago, Chicago, Illinois	X				
University of Maryland Medical Center, Baltimore, Maryland	X	X		X	
Virginia Commonwealth University Health System, Richmond, Virginia	X				
Johns Hopkins University School of Medicine, Baltimore					X
Allegheny Health Network Medical Education Consortium, Pittsburgh, Pennsylvania	X				
Total (N = 26)	13	4	3	5	1

CC = critical care; EM = emergency medicine; FM = family medicine; IM = internal medicine; peds = pediatrics.

* Data from The Accreditation Council for Graduate Medical Education (6).

Table 3. Number of Positions and Applicants in the 4 (out of 5) Types of Combined Programs That Participated in the 2018 NRMP Match as Well as the Acceptance Rate for Each of the Combined Emergency Medicine Residency Programs*

Program	No. of Programs	Total No. of Positions	Total No. of Applicants	Acceptance Rate (%)
Emergency medicine/anesthesiology	1	2	3	67
Emergency medicine/family medicine	2	4	27	15
Emergency medicine/internal medicine	11	26	94	28
Emergency medicine/pediatrics	4	8	42	19
Total	18	40	166	24

Emergency medicine/internal medicine/critical care programs do not participate in the National Resident Matching Program (NRMP) Match.

* Data from the National Resident Matching Program (8).

academic centers are more likely to have well-established research and teaching opportunities. Applicants should also evaluate programs for innovative curricula that set them apart from others. Examples of innovative curricula include emphasis on geriatric EM, critical care, academic development, leadership, toxicology, ultrasound, and cardiology.

When applying to and interviewing at combined programs, applicants should be proactive. They should spend as much time as possible at the program they are strongly considering. This allows them to directly observe the interaction between combined residents and categorical residents and gives them an overall sense of the strength of each discipline. It also conveys to the program director the seriousness about the program. Research the program thoroughly before you arrive to your interview. A great deal of information is available from the program's website and various Internet resources. Applicants should also ask questions specific to their career goals—examples include the number of graduates and their current positions. They should also inquire about research and teaching opportunities and successful placement of graduates into academic jobs, especially if they are interested in an academic career (11).

Perhaps the most valuable resource when evaluating a combined program is its current group of residents. Most programs maintain a list of residents and their contact information on their websites. Applicants can take the opportunity to contact combined residents and ask questions about the program. On interview day, applicants should plan to attend any and all activities that have been scheduled, including any dinners before or after the interview day. This provides an important glimpse into the personal relationships between residents and gives a sense of the overall personality of the program. During these events and during the interview day, applicants will be able to notice the interaction between combined residents and their categorical resident colleagues. Ideally, applicants will see a spirit of collegiality and note if the combined residents are seen as the ambassadors of the 2-parent programs.

When evaluating 5- and 6-year combined programs, location can be important. What residents do for fun

outside of work, the cost of living in the area, and the applicants' personal preferences play an important role in deciding on the location of training. In addition, if the applicant has a family, it is essential to involve the spouse and children in the discussion. It is important to live in a place that offers social activities that also appeal to the applicant's family members. Keeping a balance between residency and family life will facilitate growth and future success.

Applying to combined residency programs is a competitive process. There are many more applicants than first-year positions. Those interested in EM/Peds and EM/FM should consider applying to all programs because of the small number of positions. Most medical students apply to categorical programs in case they do not match with a combined program. Choosing which categorical programs to rank is an individual decision.

The Life of a Combined Program Resident

Combined residents are viewed as ambassadors of both parent categorical programs. It is an incredibly rewarding experience that comes with significant responsibility. Residents are in the unique position to become proficient in 2 disciplines. During EM rotations, combined residents gain valuable experience in life-saving procedures and resuscitation scenarios; this translates into effective management of emergencies in the ED, on inpatient wards, and in the intensive care unit. Combined residents have ample opportunity to supervise and teach other residents to perform these procedures. This provides excellent reinforcement of acquired skills and the opportunity to demonstrate teaching excellence and leadership. In addition, the combined resident develops expertise in the management of chronic disease. This knowledge can be incredibly valuable while working in the ED and on rotations such as trauma surgery. Extensive experience in outpatient, inpatient, EM, and CC settings provides the combined resident with a unique perspective on health care delivery systems in the country—a skill that is useful in obtaining leadership positions.

The life of a combined resident differs from that of a categorical resident. The same requirements are fulfilled

but the order of rotations is quite different. In general, combined programs rotate residents between disciplines in 1-, 3-, or 6-month blocks. In the first 2 years of residency, rotating between the specialties can cause anxiety and stress. Having not completed as many months of training in each discipline as their categorical counterparts, combined residents often have the feeling of being behind academically. Much of this anxiety fades as the resident progresses through the program.

A 2008 study assessed the satisfaction of all 112 EM/IM residents among the 11 combined programs at the time. Almost all residents (94%) expressed high degrees of satisfaction with their training, indicating that if given the opportunity they would do it all over again and believed that this training will help their careers develop (12).

Notwithstanding a high degree of satisfaction, combined residents are often faced with many challenges during their training. The most challenging times generally occur with the first discipline switch during the first year, and the transition from the third to fourth year of the program. The first discipline switch tends to produce anxiety because the resident has spent the first 3 to 4 months learning the nuances of the medical center as seen through 1 specialty. With the switch comes a new set of experiences and expectations. The remaining switches are navigated more easily as the resident progresses. Another challenging time comes at the end of the third year, when their classmates in the categorical programs prepare for graduation and new careers. However, as the fourth year of residency progresses, combined residents generally take on leadership roles within both specialties.

Life after a Combined Residency

Studies have reported high career and residency choice satisfaction among graduates of combined EM residency programs (3,13,14).

In a recent survey by Kessler et al., most EM/IM graduates are motivated to pursue fellowships, intend to dedicate the time to practice academic medicine, and anticipate practicing in both specialties (12).

Recent survey data from EM/IM and EM/Peds programs show that the overwhelming majority of graduates work in an ED setting, and >50% maintain academic medicine affiliations (14,15). Similar data are not currently available for combined EM/FM residency programs. When compared with graduates from individual programs, combined program graduates are often more competitive for positions in EDs across the country.

To date, there are still no graduates of a combined EM/anesthesiology program. Nonetheless, these graduates

are expected to “capitalize on the complementary strengths of both programs.” These programs are presumed to produce resuscitation consultants that “will be able to care for the acutely ill and injured patient across the continuum of care” and can comfortably assume a vital “role during critical times in a patient’s hospitalization” (16).

Opportunities are increasing for combined graduates to practice in both fields with joint privileges. This is especially true with the expansion of “hospitalist” and “proceduralist” roles, subspecialty practice, and CC medicine. The hospitalist field is ideal for combined graduates as a single focus or in conjunction with an EM career. Because of the shift-work schedule and procedural requirements of many hospitalists, it is an outstanding combination with EM. Examples of graduates with dual appointments include the EM/Peds graduate who splits time equally between a busy community ED and the inpatient ward and the EM/IM/CC graduate who performs CC consults, works ED shifts, and serves as attending in a medical intensive care unit.

Additional areas that are expanding for combined program graduates include fellowship training (e.g., CC medicine, cardiology), rural medicine, and international medicine. Rural medicine is a natural fit for graduates of combined programs. This discipline requires the physician working in a particular area to be knowledgeable in managing chronic diseases and acute emergencies, in all age groups, because he or she may be the only physician available. International medicine is another exciting career option for combined graduates for similar reasons. The exposure to both acute and chronic medical problems in all age groups during residency is a distinct advantage when caring for communities in developing countries that are often underserved, having limited or no medical services.

CONCLUSION

Combined residencies in EM are well established. The decision to enter a 5- or 6-year combined residency program should be well thought out, with careful attention to the pros and cons of such a decision. The time commitment is significant and requires passion, determination, and significant motivation. Upon graduation, the combined-program resident is in a privileged position to fully embrace 2 disciplines and become a superior physician leader. The career opportunities are vast, exciting, and continually evolving.

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