Strategies for Residents to Explore Careers in Medical Education

Steven Rougas, MD, MS
Xiao C. Zhang, MD, MS
Rebecca Blanchard, PhD
Sarah H. Michael, DO, MS
Courteney Mackuen, MD, MPH
Brian Lee, MD
Mariann Nocera, MD
Ross W. Hilliard, MD
Emily Green, PhD, MA

Planning a career after residency, including the decision to pursue a fellowship, community-based job, or academic appointment, is a complex process to navigate.[1–3] Residents weigh several variables, including debt, salary, protected time, family, and research interests.[4] Because of demanding clinical responsibilities, residents find it difficult to explore opportunities that will help them make informed decisions about their postresidency careers.

These opportunities are critical because of the role they play in professional identity formation. The recommendations in this article detail opportunities for residents to explore a community of practice and engage in social interaction with educators—both key components of social learning theory.[5,6] This helps move interested residents from the periphery of medical education toward full participation in the community.

There are several postgraduate and faculty development fellowship programs that also foster this development.[7,8] These programs are valuable when available but often require a formal time commitment that is challenging for residents. Many residency programs now offer specialty-specific tracks, including medical education, to help residents explore specific scholarly interests.[9–13]

The decision to pursue a medical education career is often influenced by factors not commonly discussed during residency, such as scholarly productivity, national engagement, and the complexity of balancing teaching, administrative, and clinical duties.[14] Many junior faculty struggle to navigate these challenges after they have already begun their careers. Though recent literature provides guidance for early career medical educators,[15,16] there is a need to explore best practices for residents to engage in opportunities that allow for informed career decision-making during the training years.[17]

DOI: http://dx.doi.org/10.4300/JGME-D-18-00985.1

The recommendations provided, which are grounded in the relevant literature and our shared experiences, are designed for residents interested in medical education as well as program directors and educators looking to provide guidance. We posit that these recommendations will empower residents to explore the various career paths available in medical education.

Identify Medical Education Mentors

The importance of mentoring has been well documented.[18,19] Individuals paired with mentors report improved preparation for their respective careers, better career advancement, and higher career satisfaction.[20] Despite the importance of mentoring, residents are not consistently engaging in these relationships to help advance their careers.[21,22]

Interested residents need mentorship specifically from individuals who lead medical education activities. Residents provided with preassigned mentors should seek out additional mentors with experience in medical education. Mentors can be identified through previous working relationships, recommendations from colleagues, or engagement in local, regional, and national meetings. Though there are a limited number of dedicated education research mentors for residents, there are other educators (faculty and administrators) who can help residents get early exposure to the field.[18]

Explore Teaching Activities

Opportunities for residents to get hands-on teaching experience generally fall into 2 categories: those that involve medical student learners, with residents serving as preceptors for clinical skills courses or facilitators for transition to clerkship/residency programs, and those that involve resident learners, such as morbidity and mortality conferences or weekly didactic conferences. Medical schools and graduate medical education administrators are good starting points for residents looking to identify teaching opportunities. Residents might also find value engaging in professional

TABLE 1
Selected Regional and National Conferences for Health Professions Education

Professional Association	Conference	Brief Description	Time of Year	Website
Group on Educational Affairs (GEA)	Regional Meetings	Group within AAMC that is dedicated to the advancement of medical education and those who engage in it. GEA has 4 regions: Northeast, Southern, Central, and West. Each region has an annual meeting.	Spring	https://www.aamc.org/members/gea/
Association of American Medical Colleges (AAMC)	Learn Serve Lead	Annual meeting for policymakers, administrators, educators, researchers, and learners engaged in medical education.	Fall	https://www.aamc.org/meetings/annual
Accreditation Council for Graduate Medical Education (ACGME)	Annual Educational Conference	Programming for faculty, staff, leaders, and residents engaged in graduate medical education.	Spring	https://www.acgme.org/meetings-and-events/annual-educational-conference
Specialty-specific conferences (eg, SAEM, CORD, APDIM, ACOG, APGO, ABIM, SGIM)	Varies	Most specialties have an annual conference with a portion of content and programming focused on education.	Varies	Conference information can generally be found by searching each specialty group.

Abbreviations: SAEM, Society of Academic Emergency Medicine; CORD, Council of Residency Directors in Emergency Medicine; APDIM, Association of Program Directors in Internal Medicine; ACOG, American College of Obstetricians and Gynecologists; APGO, Association of Professors of Gynecology and Obstetrics; ABIM, American Board of Internal Medicine; SGIM, Society of General Internal Medicine.

development through centers, institutes, or academies of teaching and learning.[23]

Participate in Medical Education Projects

Projects such as research or quality improvement initiatives, curricular innovations, and presentations at meetings can augment a resident's insight into education to which they otherwise may not be exposed.[24–26] While initiating a project may seem daunting at first, the process of developing an innovative and publishable project is feasible with proper faculty mentorship and program support.[27] Residents can also collaborate on existing projects or generate their own research questions through participation in conferences, journal clubs, or by identifying challenges in their everyday clinical work. A helpful primer on initiating a medical education research project is available online.[28]

Additional opportunities include working with a mentor to review abstracts for medical education conferences (TABLE 1) or articles for journals (such as the *Journal of Graduate Medical Education*).[29] Mentor-led and group peer reviews are a growing practice among educators to increase the quality of reviews and the skills of reviewers.[30,31]

Attend Medical Education Conferences

Encouraging residents to immerse themselves in the medical education community, even if only for a few sessions at a conference, can give them an idea of whether medical education is a path they want to pursue. A great place to start are national and regional education conferences (TABLE 1).

In addition to attending sessions at conferences, residents can also engage with educators about their scholarship. Conferences provide access to content and mentors beyond one's own institution and are one of the best ways to network in the medical education community. Conversations at the coffee station can be as instructive as formal sessions.[32] Conferences also offer residents an opportunity to present their projects to a wide audience of educators, which can lead to opportunities for collaboration outside of their local instituion.[33]

Harness Relevant Online and Social Media Resources

With the advent of Free Open Access Medical Education (FOAM),[34] conferences are no longer the only way that educators can interact to share ideas. Since the FOAM world can be overwhelming, a practical roadmap may be helpful.[35] Getting involved

TABLE 2
Selected Professional Development Opportunities in Health Professions Education

Program	Brief Description	Website
Leadership Education and Development (LEAD) Program	One-year certificate program offered by the AAMC for developing best practices in medical education leaders.	https://www.aamc.org/members/gea/lead
Medical Education Research Certificate (MERC) Program	Self-paced certificate program offered by the AAMC in which participants attend at least 6 workshops on the design and implementation of medical education research.	https://www.aamc.org/members/gea/merc
Harvard Macy Institute	Offers a variety of professional development courses for health professions educators.	http://www.harvardmacy.org
Clinical Teaching Program	One-month selective program offered by the Stanford Faculty Development Center to prepare participants to effectively deliver and facilitate workshops at their home institutions.	http://sfdc.stanford.edu/clinical_teaching.html
Teaching Academies	Institution-based communities of educators that offer professional development.	Varies by institution, but comprehensive listing available here: http://www.academiescollaborative.com

Abbreviation: AAMC, Association of American Medical Colleges.

with FOAM provides many benefits for residents, including access to high-quality, evidence-based medical education resources and the ability to interact with medical education journals, blogs, and educators without having to meet them in person at a conference.

Residents can also benefit by regularly reviewing current medical education literature, which is available through table of contents (TOC) alerts from some of the prominent journals in medical education. A list of journals publishing educational research in the health professions is available online.[36]

Consider Formal Training in Medical Education

A range of professional development opportunities exist for residents (TABLE 2), ranging from conferences and certificate programs to masters or doctoral degrees.[37–39] Despite a common misconception that such programs are not available to residents, many of these programs welcome resident learners, and a growing number can be completed fully or partially online.[40]

Another option is a medical education fellowship.[41–44] These 1- and 2-year mentored experiences allow fellows protected time to develop skills as medical educators, engage in scholarship, and develop professional niches.[45] Many of these fellowships incorporate degree or certificate programs as well. In addition to a fellowship, many institutions have faculty development programs open to residents.[7] Residents should seek out individuals at their institution who have completed such programs to discuss the benefits of participating early in their careers.

Conclusions

Residents weigh several factors as they choose among various career options. Finding time to explore these options is a challenge for residents who seek to make informed career decisions but are unsure how to practically approach this daunting task. The recommendations in this article are meant to provide practical advice for residents (and those advising them) interested in exploring medical education as a potential career path.

References

1. Danczyk RC, Sevdalis N, Woo K, Hingorani AP, Landry GJ, Liem TK, et al. Factors affecting career choice among the next generation of academic vascular surgeons. *J Vasc Surg*. 2012;55(5):1509–1514; discussion 1514. doi:10.1016/j.jvs.2011.11.141.
2. Lanzon J, Edwards SP, Inglehart MR. Choosing academia versus private practice: factors affecting oral maxillofacial surgery residents' career choices. *J Oral Maxillofac Surg*. 2012;70(7):1751–1761. doi:10.1016/j.joms.2012.02.008.
3. McMahon GM, Thomas L, Tucker JK, Lin J. Factors in career choice among US nephrologists. *Clin J Am Soc Nephrol*. 2012;7(11):1786–1792. doi:10.2215/CJN.03250312.

4. Burkhardt JC, Smith-Coggins R, Santen S. Residents values in a rational decision-making model: an interest in academics in emergency medicine. *Intern Emerg Med*. 2016;11(7):993–997. doi:10.1007/s11739-016-1408-8.
5. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. *Acad Med*. 2015;90(6):718–725. doi:10.1097/ACM.0000000000000700.
6. Cruess SR, Cruess RL, Steinert Y. Supporting the development of a professional identity: general principles. *Med Teach*. 2019;11:1–9. doi:10.1080/0142159X.2018.1536260.
7. Jordan J, Yarris LM, Santen SA, Guth TA, Rougas S, Runde DP, et al. Creating a cadre of fellowship-trained medical educators, part II: a formal needs assessment to structure postgraduate fellowships in medical education scholarship and leadership. *Acad Med*. 2017;92(8):1181–1188. doi:10.1097/ACM.0000000000001460.
8. Thompson BM, Searle NS, Gruppen LD, Hatem CJ, Nelson EA. A national survey of medical education fellowships. *Med Educ Online*. 2011;16:945. doi:10.3402/meo.v16i0.5642.
9. Ahn J, Martin SK, Farnan JM, Fromme HB. The Graduate Medical Education Scholars Track: developing residents as clinician-educators during clinical training via a longitudinal, multimodal, and multidisciplinary track. *Acad Med*. 2018;93(2):214–219. doi:10.1097/ACM.0000000000001815.
10. Chen HC, Wamsley MA, Azzam A, Julian K, Irby DM, O'Sullivan PS. The Health Professions Education Pathway: preparing students, residents, and fellows to become future educators. *Teach Learn Med*. 2017;29(2):216–227. doi:10.1080/10401334.2016.1230500.
11. Lin S, Sattler A, Chen Yu G, Basaviah P, Schillinger E. Training future clinician-educators: a track for family medicine residents. *Fam Med*. 2016;48(3):212–216.
12. Regan L, Stahmer S, Nyce A, Nelson BP, Moscati R, Gisondi MA, et al. Scholarly tracks in emergency medicine. *Acad Emerg Med*. 2010;17(suppl 2):87–94. doi:10.1111/j.1553-2712.2010.00890.x.
13. Smith CC, McCormick I, Huang GC. The clinician-educator track: training internal medicine residents as clinician-educators. *Acad Med*. 2014;89(6):888–891. doi:10.1097/ACM.0000000000000242.
14. Borges NJ, Navarro AM, Grover A, Hoban JD. How, when, and why do physicians choose careers in academic medicine? A literature review. *Acad Med*. 2010;85(4):680–686. doi:10.1097/ACM.0b013e3181d29cb9.
15. Cristancho S, Varpio L. Twelve tips for early career medical educators. *Med Teach*. 2016;38(4):358–363. doi:10.3109/0142159X.2015.1062084.
16. Sullivan GM. A toolkit for medical education scholarship. *J Grad Med Educ*. 2018;10(1):1–5. doi:10.4300/JGME-D-17-00974.1.
17. Williams R, Holaday L, Lamba S, Soto-Greene M, Sánchez JP. Introducing trainees to medical education activities and opportunities for educational scholarship. *MedEdPORTAL*. 2017;13:10554. doi:10.15766/mep_2374-8265.10554.
18. Blanchard RD, Visintainer PF, LaRochelle J. Cultivating medical education research mentorship as a pathway towards high quality medical education research. *J Gen Intern Med*. 2015;30(9):1359–1362. doi:10.1007/s11606-015-3295-5.
19. Zerzan JT, Hess R, Schur E, Phillips RS, Rigotti N. Making the most of mentors: a guide for mentees. *Acad Med*. 2009;84(1):140–144. doi:10.1097/ACM.0b013e3181906e8f.
20. Jotkowitz AB, Clarfield AM. Mentoring in internal medicine. *Eur J Intern Med*. 2006;17(6):399–401. doi:10.1016/j.ejim.2006.05.001.
21. Ramanan RA, Phillips RS, Davis RB, Silen W, Reede JY. Mentoring in medicine: keys to satisfaction. *Am J Med*. 2002;112(4):336–341.
22. Ramanan RA, Taylor WC, Davis RB, Phillips RS. Mentoring matters. Mentoring and career preparation in internal medicine residency training. *J Gen Intern Med*. 2006;21(4):340–345. doi:10.1111/j.1525-1497.2006.00346.x.
23. Irby DM, Cooke M, Lowenstein D, Richards B. The academy movement: a structural approach to reinvigorating the educational mission. *Acad Med*. 2004;79(8):729–736.
24. Albert M, Hodges B, Regehr G. Research in medical education: balancing service and science. *Adv Health Sci Educ Theory Pract*. 2007;12(1):103–115. doi:10.1007/s10459-006-9026-2.
25. Eva KW, Lingard L. What's next? A guiding question for educators engaged in educational research. *Med Educ*. 2008;42(8):752–754. doi:10.1111/j.1365-2923.2008.03135.x.
26. Rivera JA, Levine RB, Wright SM. Completing a scholarly project during residency training. Perspectives of residents who have been successful. *J Gen Intern Med*. 2005;20(4):366–369. doi:10.1111/j.1525-1497.2005.04157.x.
27. Bourgeois JA, Hategan A, Azzam A. Competency-based medical education and scholarship: creating an active academic culture during residency. *Perspect Med Educ*. 2015;4(5):254–258. doi:10.1007/s40037-015-0218-4.
28. Association of American Medical Colleges. Research in medical education: a primer for medical students. 2015.

https://www.aamc.org/download/429856/data/mededresearchprimer.pdf. Accessed April 19, 2019.
29. *Journal of Graduate Medical Education*. Peer reviewer instructions. 2018. https://www.jgme.org/userimages/ContentEditor/1523480228207/JGME-Peer-Reviewer-Instructions_April%202018.pdf. Accessed April 19, 2019.
30. Dumenco L, Engle DL, Goodell K, Nagler A, Ovitsh RK, Whicker SA. Expanding group peer review: a proposal for medical education scholarship. *Acad Med*. 2017;92(2):147–149. doi:10.1097/ACM.0000000000001384.
31. Ilgen JS, Artino AR Jr, Simpson D, Yarris LM, Chretien KC, Sullivan GM. Group peer review: the breakfast of champions. *J Grad Med Educ*. 2016;8(5):646–649. doi:10.4300/JGME-D-16-00531.1.
32. Stead, LG, Sadosty AT, Decker WW. Academic career development for emergency medicine residents: a road map. *Acad Emerg Med*. 2005;12(5):412–416. doi:10.1197/j.aem.2005.02.005.
33. Draugalis JR, Plaza CM. Preparing graduate students for teaching and service roles in pharmacy education. *Am J Pharm Educ*. 2007;71(5):105.
34. Cadogan M, Thoma B, Chan TM, Lin M. Free Open Access Meducation (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002–2013). *Emerg Med J*. 2014;31(e1):e76–e77. doi:10.1136/emermed-2013-203502.
35. Thoma B, Joshi N, Trueger NS, Chan TM, Lin M. Five strategies to effectively use online resources in emergency medicine. *Ann Emerg Med*. 2014;64(4):392–395. doi:10.1016/j.annemergmed.2014.05.029.
36. Association of American Medical Colleges. Annotated bibliography of journals for educational scholarship. 2017. https://www.aamc.org/download/456646/data/annotated-bibliography-of-journals-july-2017.pdf. Accessed April 19, 2019.
37. Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, et al. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME guide no. 8. *Med Teach*. 2006;28(6):497–526. doi:10.1080/01421590600902976.
38. Tekian A, Harris I. Preparing health professions education leaders worldwide: a description of masters-level programs. *Med Teach*. 2012;34(1):52–58. doi:10.3109/0142159X.2011.599895.
39. Tekian A. Doctoral programs in health professions education. *Med Teach*. 2014;36(1):73–81. doi:10.3109/0142159X.2013.847913.
40. Dyrbye L, Cumyn A, Day H, Heflin M. A qualitative study of physicians' experiences with online learning in a masters degree program: benefits, challenges, and proposed solutions. *Med Teach*. 2009;31(2):e40–e46. doi:10.1080/01421590802366129.
41. Yarris LM, Jordan J, Coates WC. Education scholarship fellowships: an emerging model for creating educational leaders. *J Grad Med Educ*. 2016;8(5):668–673. doi:10.4300/JGME-D-15-00616.1.
42. Coates WC, Lin M, Clarke S, Jordan J, Guth T, Santen SA, et al. Defining a core curriculum for education scholarship fellowships in emergency medicine. *Acad Emerg Med*. 2012;19(12):1411–1418. doi:10.1111/acem.12036.
43. Dewey CM, Turner TL, Perkowski L, Bailey J, Gruppen LD, Riddle J, et al. Twelve tips for developing, implementing, and sustaining medical education fellowship programs: building on new trends and solid foundations. *Med Teach*. 2016;38(2):141–149. doi:10.3109/0142159X.2015.1056518.
44. Lown BA, Newman LR, Hatem CJ. The personal and professional impact of a fellowship in medical education. *Acad Med*. 2009;84(8):1089–1097. doi:10.1097/ACM.0b013e3181ad1635.
45. Coates WC, Runde DP, Yarris LM, Rougas S, Guth TA, Santen SA, et al. Creating a cadre of fellowship-trained medical educators: a qualitative study of faculty development program leaders' perspectives and advice. *Acad Med*. 2016;91(12):1696–1704. doi:10.1097/ACM.0000000000001097.

Steven Rougas, MD, MS, is Assistant Professor of Emergency Medicine and Medical Science and Director of the Doctoring Program, Alpert Medical School of Brown University; **Xiao C. Zhang, MD, MS,** is Assistant Professor of Emergency Medicine and Assistant Clerkship Director, Department of Emergency Medicine, Thomas Jefferson University; **Rebecca Blanchard, PhD,** is Senior Director of Educational Affairs, Baystate Health, and Assistant Dean for Education and Associate Professor, University of Massachusetts Medical School–Baystate; **Sarah H. Michael, DO, MS,** is Assistant Professor of Emergency Medicine, University of Colorado School of Medicine; **Courteney Mackuen, MD, MPH,** is Attending Physician in Emergency Medicine, Cone Health; **Brian Lee, MD,** is an Instructor, Department of Pediatrics, Alpert Medical School of Brown University; **Mariann Nocera, MD,** is Assistant Professor of Pediatrics and Emergency Medicine, University of Connecticut School of Medicine, Division of Pediatric Emergency Medicine, Connecticut Children's Medical Center; **Ross W. Hilliard, MD,** is Assistant Professor of Medicine, Alpert Medical School of Brown University, Associate Program Director, Brown Internal Medicine Residency Program, and Director of Medical Informatics, Lifespan Health System; and **Emily Green, PhD, MA,** is Director of Student and Faculty Development and Assistant Professor of Medical Science, Alpert Medical School of Brown University.

Corresponding author: Steven Rougas, MD, MS, Alpert Medical School of Brown University, Box GM-311, 222 Richmond Street, Providence, RI 02912, 401.863.2357, fax 401.863.7574, steven_rougas@brown.edu