Fostering Certainty in an Uncertain Era of Virtual Residency Interviews

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The COVID-19 pandemic has caused major disruptions in medical education. Most medical schools abruptly converted teaching to virtual classrooms and halted or dramatically reduced in-person clinical experiences. In light of these changes hindering medical students from completing required rotations, the Coalition for Physician Accountability issued guidance in May for the 2020–2021 residency application cycle.[1] In addition to discouraging most away rotations and delaying release of applications through the Electronic Residency Application Service, the coalition recommended all residency programs perform virtual instead of on-site applicant interviews this cycle.

We commend these decisions to prioritize faculty, resident, and applicant safety during this pandemic, as well as to potentially increase equity among applicants across the socioeconomic spectrum by eliminating interview travel costs. However, virtual interviews create new obstacles; they limit applicants' opportunities to visit residency programs, interact with residents and faculty both formally and informally, experience programs' clinical and educational environments, observe didactics, understand residents' responsibilities and opportunities, assess programs' patient populations, and evaluate cities or towns firsthand. As the top factors influencing US medical student applicants' ranking of residency programs are overall goodness of fit (89%), interview day experience (82%), and the quality of residents (75%),[2] current applicants may have less information on which to base their residency choice—which arguably represents the most formative years of clinical training.

Here, the authors (a former residency program director and a medical student residency applicant) propose several strategies for residency programs to optimize applicants' understanding throughout the application, interview, and ranking process (TABLE). These 5 methods should help mitigate the aforementioned obstacles and cultivate enhanced fit between programs and applicants.

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1. Create and maintain a comprehensive, informative residency program website. Undoubtedly, applicants will rely heavily on remote methods to learn about programs this year. Program websites should include information on their mission, faculty, residents, curriculum, residency track opportunities (eg, research tracks, leadership tracks, or additional degrees), and number of residency spots. Several studies have revealed that many residency program websites are inadequately comprehensive.[3–12] An investigation of otolaryngology residency program websites found that only 80% listed didactics, 74% listed current residents, 70% described facilities, 64% discussed clinical schedules, 40% provided call schedules, and 33% provided messages from program directors.[3] Another study found 98% of anesthesiology applicants reported using program websites while applying, yet only 46% of content items they found useful were actually located on program websites.[4] Similarly, neurological surgery, plastic surgery, vascular surgery, and radiology residency program websites contained only 35% to 61% of content items useful for applying to residency programs.[5–8] Despite the inadequate content of many program websites, the information and quality of these websites play important roles in applicants' program selection and ranking; 41% of emergency medicine applicants reported not applying to certain programs based on information from their websites and 34% of plastic surgery applicants stated that program website quality influenced their decisions to interview at a program.[13,14] Program websites that clearly and concisely summarize core program attributes will serve as invaluable applicant resources for distinguishing programs and judging each program's mission.

2. Summarize application requirements and program-specific details. Relevant information to provide includes selection criteria such as test score cutoffs and deadlines for board examinations, recommended research and volunteer experiences, and visa sponsorship for international medical graduates. Additionally, nearly 70% of applicants have cited selection criteria as useful when applying to residency programs, but only a minority of residency websites

TABLE
Strategies to Foster Dissemination of Residency Program Information to Applicants

Dimension	Methods to Share Dimension with Applicants
Program website	▪ Summary of residency program, including mission, program leadership, faculty, residents, hospitals and clinics in which residents rotate, residency track opportunities (eg, research track, leadership tracks, additional degrees), and number of residency spots each year[12,15,16] ▪ Message from the program director or chair in a video and/or written statement[15] ▪ Photographs and video clips of the residency program across the years, including photographs and clips from resident retreats, social occasions, and clinical teams[4,17,18]
Application process	▪ List of application components, including program-specific requirements (eg, secondary essays, USMLE Step 2 CK score) and deadlines for receipt[18] ▪ Up-to-date visa sponsorship policies for international medical graduates ▪ Interview selection criteria[13,18] ▪ Contact email[18] ▪ Virtual town hall to answer applicants' questions and to discuss changes the program is making this application cycle
Setting	▪ Description of facilities ▪ Video tour of the city/town or neighborhood[2,17] ▪ Video tour of the hospitals, clinics, and department[12,18] ▪ Video tour or photographs of resident-specific work rooms or lounges[12] ▪ Links to local community resources[18]
Patient population	▪ Demographic data of the patient population on the program website, including race and ethnicity, age groups, and socioeconomic information of patients[15,18]
Curriculum and didactics	▪ Description of didactics[15] ▪ Example resident year-long rotation schedules and call schedules[12,15,18] ▪ Description of year-to-year progression of resident responsibilities[12,15,18] ▪ Different subspecialty experiences and opportunities for clinical immersions, remote/away electives, and electives in different departments[12,18,19] ▪ List of electives and the amount of time residents have at the program to experience subspecialties in which they may want to pursue a fellowship[15] ▪ Recorded videos of resident didactics ▪ Recorded videos of grand rounds and/or case conferences ▪ Video interviews with residents discussing the curriculum and didactics, and resources that they use to prepare for board examinations[14,17]
Research	▪ Description of research requirements and support[14] ▪ Video interviews of different residents conducting different types of research (eg, basic, clinical, epidemiology, informatics)[14,18] ▪ Video interviews of faculty conducting different types of research (eg, basic, clinical, epidemiology, informatics)[18] ▪ Sources of research funding, if available ▪ List of resident and faculty publications and conference presentations[4,12,17,18]
Resident life and culture	▪ Videos of "A Day in My Life" for residents, which follows a resident throughout their day beginning at home, transporting to/from work, and navigating a typical workday[4,12,18] ▪ Video tour of residents' homes and neighborhoods[12,13,16,17,20] ▪ Interactive Q&A session with residents, questions for session can be collected beforehand and the session recorded[4,13,17,18,20] ▪ Pre-interview, virtual coffee chat or happy hour with residents[4]
Extracurricular activities	▪ List of extracurricular opportunities open to residents ▪ List of activities that current residents are engaged in, such as volunteering, outdoor activities, classes, and family time[17] ▪ Opportunities to teach medical students ▪ Opportunities to serve in free clinics for underinsured or uninsured patients ▪ List of different journal clubs and articles discussed in the them

TABLE
Strategies to Foster Dissemination of Residency Program Information to Applicants continued

Dimension	Methods to Share Dimension with Applicants
Distinguishing factors	▪ Video interview of program director explaining the program's mission, which residents thrive in the program, and factors that set the program apart[4,13,21] ▪ Video interview of residents explaining how they chose the program and what factors they believe distinguish the program from others[15] ▪ Videos or quotes from residency program alumni that explain how well the residency program prepared them for their respective careers[17,18,22] ▪ Residency program benefits, health insurance, salary, parking, meal allowance, and vacation time[12,13,15,18] ▪ List of careers and fellowships pursued by residency graduates each year[18,23] ▪ Q&A forum on the program's website for interviewees to ask questions ▪ Social media platforms to share photographs and events from the residency program throughout the year, as well as keep applicants updated on deadlines and policy changes as the application process evolves[18,23]

provided such information.[5,6,13] Virtual town halls and social media (eg, Twitter) can provide outlets for programs to answer applicants' questions and address program-specific application requirements implemented this year.[23] These efforts will enable applicants to determine if they meet programs' admission requirements and priorities, and in turn, focus their efforts and resources on programs that are the best fit.

3. Capitalize on using multimedia platforms. Applicants will likely find multimedia, including videos and photographs, particularly useful in exploring intangible aspects of residency programs (eg, culture and resident happiness). Anesthesiology applicants consistently rank multimedia as "very" or "most" helpful for determining residents' happiness, learning how "fun" the program is, and feeling good about their residency program choice.[4] Videos and photographs can be published on program websites, posted on social media, or sent to interviewees. Using videos, program directors and faculty can discuss the program's unique mission (eg, focusing on research, serving urban and underserved populations, or training rural physicians), distinguishing factors, examples of resident research, key educational and clinical experiences, and patient demographics. Such information can help applicants discover programs that better fit their personal and professional goals. Resident videos can focus on why residents chose the program, what they enjoy, and what clinical responsibilities look like.[17] Creative and personal videos—following residents through typical workdays, tours of the facilities, and tours of residents' homes and the city—will enable applicants to more holistically understand the program's residency experience both inside and outside work. Photographs of department events and clinical teams can similarly help applicants learn about the program's culture and training environment. Videos may be the highest yield when kept short (eg, a few minutes), direct, and personal.[24,25]

4. Publish pre-recorded videos of didactic sessions, clinical case conferences, and departmental grand rounds. Some programs emphasize resident-led didactics, while others primarily rely on faculty-led didactics and invited speakers. Exposure to the educational environment will enable applicants to better understand the program's teaching methods,[15] residents' teaching responsibilities, and changes to residents' educational experiences due to the COVID-19 pandemic. If residents teach medical students and other trainees, videos depicting such resident teaching may also be valuable. If technological support allows, programs can post videos of entire conferences or multiple shorter videos (eg, 6–9 minute blocks corresponding to optimal length of medical education videos for viewer education).[24–28]

5. Organize informal virtual pre-interview get-togethers and create Q&A forums for interviewees. Traditionally, pre-interview dinners and interview day "small talk" between applicants and residents gave applicants crucial transparency into resident and program culture and into perceived program strengths and weaknesses. This year, programs can offer informal coffee chats or happy hours with their current residents, whereby interviewees meet residents (eg, 2–3 interviewees per resident) virtually to learn about programs, hear candid reflections on training, and ask questions prior to interviews. These experiences will enable applicants to determine "fit" (ie, how well their personal, educational, and career goals and interests align with those of current residents and the program's philosophy). Following interviews, Q&A forums on residency program websites can provide space for interviewees to post questions. Implementing these strategies may require institutional technological support, but tech-savvy

residents or faculty may be able to take on leadership or supervisory roles.

As programs pilot multiple initiatives for applicant recruitment and interviews, this application cycle creates several research opportunities, such as examining which mechanisms help applicants best determine program fit remotely. As web-based interviewing may potentially save applicants thousands of dollars by eliminating travel costs,[29–34] broad-scale studies can examine whether virtual interviews benefit applicants across demographic and socioeconomic lines. Studies on how often applicants match into one of their top-choice programs compared to prior years are also warranted. Finally, educators can investigate best practices for virtual content sharing, recruitment event timing (particularly considering international applicants), and needs assessments among applicants with resource limitations (eg, broadband connectivity for applicants in rural regions or internationally).

Just as medical educators rapidly adapted to the COVID-19 pandemic by building virtual didactics and telehealth experiences, we anticipate residency programs will successfully adapt their online content and recruitment efforts to better inform applicants. We live in an era of uncertainty that is constantly evolving—let us evolve residency program recruitment by facilitating communication and engagement with applicants along the way.

References

1. Association of American Medical Colleges. Coalition for Physician Accountability's Work Group. Final Report and Recommendations for Medical Education Institutions of LCME-Accredited, U.S. Osteopathic, and Non-U.S. Medical School Applicants. https://www.aamc.org/system/files/2020-05/covid19_Final_Recommendations_Executive%20Summary_Final_05112020.pdf. Accessed August 17, 2020.
2. American Medical Association. Murphy B. Which factors do applicants weigh most when picking residency programs? https://www.ama-assn.org/residents-students/residency/which-factors-do-applicants-weigh-most-when-picking-residency-programs. Accessed August 17, 2020.
3. Svider PF, Gupta A, Johnson AP, Zuliani G, Shkoukani MA, Eloy JA, et al. Evaluation of otolaryngology residency program websites. *JAMA Otolaryngol Head Neck Surg*. 2014;140(10):956–960. doi:10.1001/jamaoto.2014.1714.
4. Chu LF, Young CA, Zamora AK, Lowe D, Hoang DB, Pearl RG, et al. Self-reported information needs of anesthesia residency applicants and analysis of applicant-related web sites resources at 131 United States training programs. *Anesth Analg*. 2011;112(2):430–439. doi:10.1213/ANE.0b013e3182027a94.
5. Skovrlj B, Silvestre J, Ibeh C, Abbatematteo JM, Mocco J. Neurosurgery residency websites: a critical evaluation. *World Neurosurg*. 2015;84(3):727–733. doi:10.1016/j.wneu.2015.04.051.
6. Silvestre J, Tomlinson-Hansen S, Fosnot J, Taylor JA. Plastic surgery residency websites: a critical analysis of accessibility and content. *Ann Plast Surg*. 2014;72(3):265–269. doi:10.1097/SAP.0000000000000125.
7. Hansberry DR, Bornstein J, Agarwal N, McClure KE, Deshmukh SP, Long S. An assessment of radiology residency program websites. *J Am Coll Radiol*. 2018;15(4):663–666. doi:10.1016/j.jacr.2017.11.010.
8. Huang BY, Hicks TD, Haidar GM, Pounds LL, Davies MG. An evaluation of the availability, accessibility, and quality of online content of vascular surgery training program websites for residency and fellowship applicants. *J Vasc Surg*. 2017;66(6):1892–1901. doi:10.1016/j.jvs.2017.08.064.
9. Reilly EF, Leibrandt TJ, Zonno AJ, Simpson MC, Morris JB. General surgery residency program websites: usefulness and usability for resident applicants. *Curr Surg*. 2004;61(2):236–240. doi:10.1016/j.cursur.2003.10.006.
10. Ahmed SA, Hyman C, Eltorai AEM, Ahn SH. Evaluation of integrated interventional radiology residency websites. *R I Med J*. 2019;102(6):19–23.
11. Novin SA, Yi PH, Vanderplas T, Magid D. How well do we represent ourselves? A student-centric analysis of radiology residency website content. *Curr Probl Diagn Radiol*. 2019;48(5):427–432. doi:10.1067/j.cpradiol.2018.05.012.
12. Embi PJ, Desai S, Cooney TG. Use and utility of web-based residency program information: a survey of residency applicants. *J Med Internet Res*. 2003;5(3):e22. doi:10.2196/jmir.5.3.e22.
13. Gaeta TJ, Birkhahn RH, Lamont D, Banga N, Bove JJ. Aspects of residency programs' web sites important to student applicants. *Acad Emerg Med*. 2005;12(1):89–92. doi:10.1111/j.1553-2712.2005.tb01486.x.
14. Chen VW, Hoang D, Garner W. Do websites provide what applicants need? Plastic surgery residency program websites versus applicant self-reported needs. *Plast Reconstr Surg Glob Open*. 2018;6(10):e1900. doi:10.1097/GOX.0000000000001900.
15. Phitayakorn R, Macklin EA, Goldsmith J, Weinstein DF. Applicants' self-reported priorities in selecting a residency program. *J Grad Med Educ*. 2015;7(1):21–26. doi:10.4300/JGME-D-14-00142.1.

16. Millington S, Ball I, Seabrook JA, McCauley W. Attracting top residency candidates: a survey of important program attributes. *CJEM*. 2005;7(6):411–414.
17. Yarris LM, Deiorio NM, Lowe RA. Factors applicants value when selecting an emergency medicine residency. *West J Emerg Med*. 2009;10(3):159–162.
18. Deloney LA, Perrot LJ, Lensing SY, Jambhekar K. Radiology resident recruitment: a study of the impact of web-based information and interview day activities. *Acad Radiol*. 2014;21(7):931–937. doi:10.1016/j.acra.2014.03.009.
19. Love JN, Howell JM, Hegarty CB, McLaughlin SA, Coates WC, Hopson LR, et al. Factors that influence medical student selection of an emergency medicine residency program: implications for training programs. *Acad Emerg Med*. 2012;19(4):455–460. doi:10.1111/j.1553-2712.2012.01323.x.
20. Sinno S, Mehta K, Squitieri L, Ranganathan K, Koeckert MS, Patel A, et al. Residency characteristics that matter most to plastic surgery applicants: a multi-institutional analysis and review of the literature. *Ann Plast Surg*. 2015;74(6):713–717. doi:10.1097/SAP.0000000000000511.
21. Huntington WP, Haines N, Patt JC. What factors influence applicants' rankings of orthopaedic surgery residency programs in the National Resident Matching Program? *Clin Orthop Relat Res*. 2014;472(9):2859–2866. doi:10.1007/s11999-014-3692-9.
22. St. Amour BA. Factors important to applicants to osteopathic versus allopathic emergency medicine residency programs. *West J Emerg Med*. 2014;15(2):184–187. doi:10.5811/westjem.2013.10.18164.
23. Schweitzer J, Hannan A, Coren J. The role of social networking web sites in influencing residency decisions. *J Am Osteopath Assoc*. 2012;112(10):673–679. doi:10.7556/jaoa.2012.112.10.673.
24. Dzara K, Chen DT, Haidet P, Murray H, Tackett S, Chisolm MS. The effective use of videos in medical education. *Acad Med*. 2020;95(6):970. doi:10.1097/ACM.0000000000003056.
25. Wistia. Fishman E. Proof That Humans Have a Two-Minute Attention Span. https://wistia.com/learn/marketing/optimal-video-length. Accessed August 17, 2020.
26. Norman MK. 12 tips for reducing production time and increasing long-term usability of instructional video. *Med Teach*. 2017;39(8):808–812. doi:10.1080/0142159X.2017.1322190.
27. Williams R, Evans L, Alshareef NT. Using TV dramas in medical education. *Educ Prim Care*. 2015;26(1):48–49. doi:10.1080/14739879.2015.11494308.
28. Hirt C, Wong K, Erichsen S, White JS. Medical dramas on television: a brief guide for educators. *Med Teach*. 2013;35(3):237–242. doi:10.3109/0142159X.2012.737960.
29. Fogel HA, Liskutin TE, Wu K, Nystrom L, Martin B, Schiff A. The economic burden of residency interviews on applicants. *Iowa Orthop J*. 2018;38:9–15.
30. Edje L, Miller C, Kiefer J, Oram D. Using Skype as an alternative for residency selection interviews. *J Grad Med Educ*. 2013;5(3):503–505. doi:10.4300/JGME-D-12-00152.1.
31. Monir JG. Reforming the Match: a proposal for a new 3-phase system. *J Grad Med Educ*. 2020;12(1):7–9. doi:10.4300/JGME-D-19-00425.1.
32. Egro FM, Smith BT, Nguyen VT. Systematic review of the cost of applying to integrated plastic surgery residency. *Plast Reconstr Surg*. 2018;142(5):e820–e821. doi:10.1097/PRS.0000000000004913.
33. Camp CL, Sousa PL, Hanssen AD, Karam MD, Haidukewych GJ, Oakes DA, et al. The cost of getting into orthopedic residency: analysis of applicant demographics, expenditures, and the value of away rotations. *J Surg Educ*. 2016;73(5):886–891. doi:10.1016/j.jsurg.2016.04.003.
34. Polacco MA, Lally J, Walls A, Harrold LR, Malekzadeh S, Chen EY. Digging into debt: the financial burden associated with the otolaryngology Match. *Otolaryngol Head Neck Surg*. 2017;156(6):1091–1096. doi:10.1177/0194599816686538.

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