Virtual Radiology Fellowship Recruitment: Benefits, Limitations, and Future Directions

Dhairya A Lakhani, MD, Francis Deng, MD, Charlotte Chung, MD, PhD, Mohit Agarwal, MD,
Ashley Aiken, MD, Lori A Deitte, MD, Erik H Middlebrooks, MD

Key Words: Virtual recruitment; interview; radiology; fellowship.

The coronavirus pandemic forced radiology fellowships to shift to virtual interviews, a practice that continues for the 2022 application season. There are multiple publications pertaining to virtual radiology residency recruitment, but perspectives on the parallel process for fellowships are lacking even though this affects the vast majority of United States (US) radiology residents (1-24). In this commentary, we highlight some benefits, challenges, and solutions related to virtual radiology fellowship recruitment in order to stimulate discussion and planning for future cycles. The following discussion is not intended to be an authoritative guide, but rather a means to spur discussion on the pros and cons of virtual recruitment, with the aim to enhance the process for both applicants and programs.

BENEFITS

Although borne of necessity to circumvent the hurdles of the pandemic, virtual fellowship recruitment offers several benefits over an in-person process (1,5). Foremost, virtual interviews save time and money for both applicants and training programs (25-27). For transportation and overnight lodging in the pre-virtual era, residents spent an average $1371 on fellowship interviews (28). While this amount is less than that spent on residency interviews, fellowship interviews present a different challenge since securing time off the clinical service may be more difficult for residents than fourth year medical students. In a pre-pandemic survey, 63% of radiology residency program directors felt that the number of residents leaving for fellowship interviews was an impediment to residency training (28). In saving travel time, virtual interviewees create less disruption for clinical coverage. Additionally, virtual recruitment may improve applicant equity (such as for those with disabilities or caregiving responsibilities) and reduce radiology's environmental impact (5). The virtual meeting platform provides an opportunity to choose the preferred interview location by both the candidate and faculty interviewers that may include their office, home, or a quiet place in the reading room creating a low stress environment for both (1,5). The virtual process allows the candidates to interview at more programs and potentially increases their chances of finding a program more favorable to their professional and personal needs. Ongoing travel restrictions due to the pandemic have significantly impacted international candidates; the virtual process allows them to interview despite the challenges of international travel (29,30).

CHALLENGES

There are challenges in the virtual fellowship recruitment process. First, technical difficulties are possible. Different fellowship programs use a variety of platforms, including Zoom, Thalamus, WebEx, and Microsoft Teams, each with features and limitations with which applicants may be unfamiliar if not used routinely. Unreliable home internet connections, inadequate lighting, low-quality audiovisual recording hardware, or background noise can interfere with interviews and make a poor impression. These factors present potential new sources of bias against some applicants (30-32).

Second, the virtual format may make it more difficult to engage in salient interactions with current fellows and observe the physical and social environment of the program. Both the resident and the fellowship program may have

difficulty assessing the "vibe" or personality/culture of the other and thus their mutual fit (8,9,30). Candidates may have to rely more heavily on secondary sources of information and the reputation of a program (11).

Third, the ease of the virtual interview may lead residents to participate in a greater number of interviews, even at less preferred programs. Programs are likely to conduct more interviews in anticipation of this issue, negating some of the resource savings of the virtual format (5,8,30). In the end, if the residency recruitment experience is any guide, programs' rank lists will likely perform on par with prior years (5).

Fourth, the virtual format eliminates the assessment of physical location of the fellowship program, and city where they will spend one-two years of their training. For applicants unfamiliar with the area, this has negative implications including assessment of commute time, availability of public transportation, safety, recreational opportunities, ethnic and religious communities, child care opportunities, and sports. Similarly for applicants unfamiliar with the program, this has negative implications including assessment of the program's facility, infrastructure, cafeteria, library, call room, and reading room (6,7,9,10,33–35).

In addition to these challenges, international fellowship applicants may experience disadvantages compared to applicants from the United States. Specifically, travel restrictions related to the COVID-19 pandemic result in: i) Limited exposure to radiology and the US clinical experience: International fellowship applicants typically spend a few months completing rotations in radiology departments across several institutions to gain a more holistic exposure to the nuances of radiology practices in this country. Some applicants may decide to undertake a research year to gain more experience and improve their chance of matching into their fellowship program of choice. The ability to participate in radiology rotations and research has been hampered due to frequent changes in policies and travel restrictions, ultimately limiting the international candidate's exposure to programs and the programs' exposure to excellent international candidates. ii) Lack of advocacy: Exposure of international candidates to US programs allows them to showcase their skills and interests, as well as the value they would add to a fellowship program. Faculty could thus advocate for these candidates to their own programs and/or to other programs through letters of recommendation. The inability of international candidates to perform research or participate in clinical rotations limits their access to advocacy from US faculty, an aspect that is favored in the interview process over support from the home country faculty due to lack of familiarity of US programs with international programs and letter writers. iii) Time Zones: Due to evolving changes in policy regarding international travel restrictions, international fellowship applicants may be interviewing virtually from their home countries. This can create even more extremes of time zone variation than discussed with US candidates. The programs should be mindful of these time zone differences: for example, 10 am Eastern Standard Time, an ideal time for interviewing in the United States

would be 12 am in Japan. iv) Lack of familiarity with the US English vernacular: living in any country is an experience in which repeated human interactions play a vital role. A 15 minute virtual interview experience can be greatly enhanced (or restricted) by the knowledge (or lack thereof) of common phrases and expressions that can be learned only by spending time in the country (29).
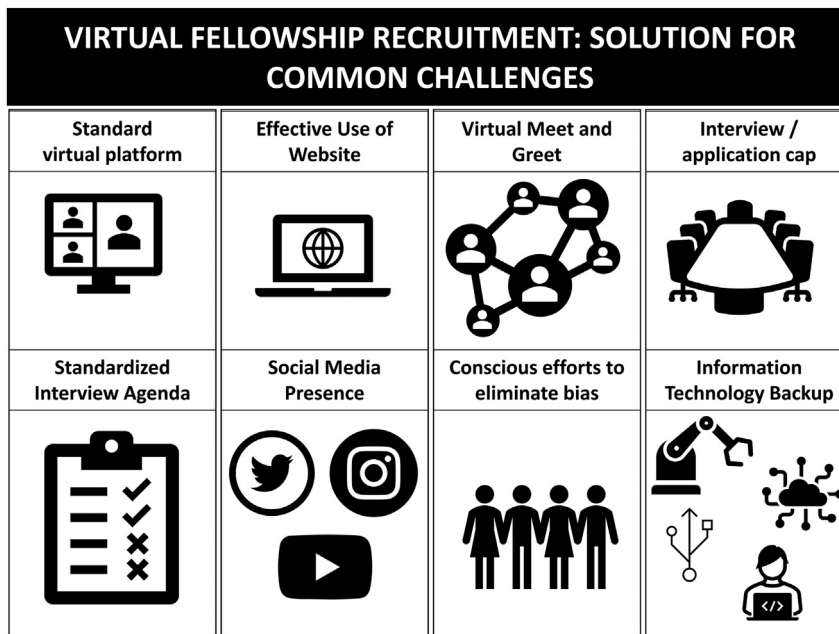
SOLUTIONS

With these benefits and challenges in mind, how can we improve the virtual fellowship recruitment process for upcoming cycles? We believe adapting the following steps will help make experiences with virtual recruitment better overall Fig. 1.

The interview experience can be better streamlined if fellowships, through their subspecialty societies, agree on a common platform and share best practices, reducing applicants' anxiety related to logistical and technologic variations on interview days. To promote equity among applicants, residency programs should make available a space and resources, including a computer, suitable for residents participating in virtual interviews if their home environment is suboptimal (3,10,32,36,37).

Fellowships should maximize their methods of engaging with candidates outside the formal interviews. First, the program website should be updated with information about current trainees and faculty, the facility and practice setting, and any unique aspects of the curriculum. These details should be congruent with data in the American Medical Association's Fellowship and Residency Electronic Interactive Database Access (FREIDA) (38). Second, fellowship programs and affiliates should establish a social media presence (39). While there is increasing utilization of social media by radiology residency programs, fellowship-specific accounts are rare, including 11% of neuroradiology programs (40) and 3% of nuclear medicine programs (41). Typical content for posts includes fellow awards, interesting cases, publications, or social events (42). Third, programs should consider creating introductory videos that convey a more vivid impression of their people and locations in which they will train. Finally, it is important for the program to conduct virtual social ("break-room" or "meet-and-greet") sessions with current fellows and faculty prior to the interview, which allow for more candid conversations and help both the candidate and the program assess each other (10,43,44). Using a virtual reality platform can offer better candidate experiences as compared to conventional video conferencing software (10).

Residency programs are piloting use of signaling tokens from ERAS. The concept is that the applicants could "signal" their top 5 programs, which give programs some idea of where the applicants fall at their rank list. This may help reduce the actual number of interview invitations. Depending on the outcomes, fellowship programs may consider implementing this concept.

Figure 1. Solution to common challenges of virtual fellowship recruitment.

CONCLUSION

There are several advantages and disadvantages to the virtual fellowship recruitment process. Once we emerge from the pandemic and return to "normalcy," upcoming cycles will present opportunities to evaluate the effectiveness of the virtual fellowship recruitment process. Whether virtual interviews should be continued post-pandemic era remains unanswered. Several factors to consider include: unconscious bias in candidate selection, candidate satisfaction, program satisfaction, and fellowship match statistics. The overall goal is to enhance the recruitment process for both the applicants and the fellowship programs.

FINANCIAL DISCLOSURE

None.

ACKNOWLEDGMENT

REFERENCES

1. Deitte LA, Mian AZ, Esfahani SA, Hu JY, et al. Going virtual: redesigning the interview experience. J Am Coll Radiol 2021; 18:337–339.
2. Joshi A, Bloom DA, Spencer A, et al. Video interviewing: a review and recommendations for implementation in the era of COVID-19 and beyond. Acad Radiol 2020; 27:1316–1322.
3. Phadke D, Khaja MS, Banathy AK, et al. Maximizing educational engagement and program exposure for recruitment to the integrated and independent interventional radiology programs in a virtual environment. Acad Radiol 2022; 29:413–415.
4. Tang OY, Ruddell JH, Hilliard RW, et al. Improving the online presence of residency programs to ameliorate COVID-19's impact on residency applications. Postgrad Med 2021; 133:404–408.
5. Moran SK, Nguyen JK, Grimm LJ, et al. Should radiology residency interviews remain virtual? Results of a multi-institutional survey inform the debate. Acad Radiol 2021; 29:1595–1607.
6. Kerrigan TP, Jeong CY, Pannu S, et al. Increasing applicant engagement during the 2020-2021 virtual residency interview cycle and beyond: the Dartmouth-Hitchcock Radiology Residency Video Project. Acad Radiol 2022; 29:1266–1274.
7. McCain C, Kemp B, Baier MB, et al. A Framework for the virtual medical interview process: considerations for the applicant and the interviewer. Ochsner J 2022; 22:61–70.
8. Kamel S, Wang MX, Guccione J, et al. Analyzing the landscape of the 2021 virtual match: a nationwide survey of radiology programs' stakeholders. Acad Radiol 2021; 29:1432–1446.
9. Yee JM, Moran S, Chapman T. From beginning to end: a single radiology residency program's experience with web-based resident recruitment during COVID-19 and a review of the literature. Acad Radiol 2021; 28:1159–1168.
10. Guichet PL, Huang J, Zhan C, et al. Incorporation of a social virtual reality platform into the residency recruitment season. Acad Radiol 2021; 29:935–942.
11. Czawlytko C, Smith E, Awan O, et al. The effect of virtual interviews and social media on applicant decision-making during the 2020-2021 resident match cycle. Acad Radiol 2021; 29:928–934.
12. Jones HM, Ankem A, Seroogy EA, et al. Impact of COVID-19 on radiology residency selection process: a survey of radiology residency programs in the US. Acad Radiol 2022; 29:779–785.
13. Singh NP, DeAtkine AB, Hattaway RH, et al. Changes in United States residency program online presence following COVID-19. Teach Learn Med 2022: 1–11.
14. Ream MA, Thompson-Stone R. Virtual residency interview experience: the child neurology residency program perspective. Pediatr Neurol 2022; 126:3–8.
15. Codner K, Palla B, Miloro M. What are the lessons learned from the virtual interview process for oral and maxillofacial surgery residency programs affected by COVID-19? J Oral Maxillofac Surg 2022; 80:386–391.
16. Walk C, Gerardo R, Tuttle R, et al. Thriving in the virtual era: an organized approach to improve program visibility and virtual residency interview process. J Surg Educ, 2022 Jun 29:S1931-7204(22)00115-5. Epub ahead of print.
17. Ponterio JM, Levy L, Lakhi NA. Evaluation of the virtual interview format for resident recruitment as a result of COVID-19 restrictions: residency program directors' perspectives. Acad Med 2022; 97:1360–1367.
18. Estevez TP, Casasnovas CE, Safin DS. Structuring the future residency recruitment seasons: applicants' perspective on the virtual experience during the 2020-2021 interview season. Acad Psychiatry 2022; 46:140–141.

19. Alomari S, Lubelski D, Feghali J, et al. Impact of virtual vs. in-person interviews among neurosurgery residency applicants. J Clin Neurosci 2022; 101:63–66.

20. Shreffler J, Platt M, Thé S, et al. Planning virtual residency interviews as a result of COVID-19: insight from residency applicants and physicians conducting interviews. Postgrad Med J 2022; 98:276–280.

21. Zhang R, Schappe A, Salyapongse N, et al. To zoom or not to zoom: weighing the pros and cons of the virtual plastic surgery residency interview. Plast Reconstr Surg 2022; 149:365e–366e.

22. Warren JR, Khalil LS, Pietroski AD, et al. Perceived effectiveness of video interviews for orthopaedic surgery residency during COVID-19. BMC Med Educ 2022; 22:566.

23. Mulligan KM, Pan X, Gerges C, et al. The 2021 neurosurgery match: an analysis of the impact of virtual interviewing and other COVID-19-related changes. World Neurosurg 2022; 162:e8–e13.

24. Blankenburg R, Gonzalez Del Rey J, Aylor M, et al. The impact of the COVID-19 pandemic on pediatric graduate medical education: lessons learned and pathways forward. Acad Med 2022; 97:S35–S39.

25. Huppert LA, Hsiao EC, Cho KC, et al. Virtual interviews at graduate medical education training programs: determining evidence-based best practices. Acad Med 2020; 96:1137–1145.

26. Gorgy M, Shah S, Arbuiso S, et al. Comparison of cost changes due to the COVID-19 pandemic for Dermatology residency applications in the USA. Clin Exp Dermatol 2022; 47:600–602.

27. Gordon AM, Conway CA, Sheth BK, et al. How did coronavirus-19 impact the expenses for medical students applying to an orthopaedic surgery residency in 2020 to 2021? Clin Orthop Relat Res 2022; 480:443–451.

28. Pfeifer CM, Reddy N, Burton KR, et al. The evolving status of fellowships and mini-fellowships in diagnostic radiology: a survey of program directors and chief residents. Acad Radiol 2021; 28:1264–1271.

29. Garg T. Virtual interviews: an international medical student perspective. J Am Coll Radiol 2020; 17:1196.

30. Nguyen JK, Shah N, Heitkamp DE, et al. COVID-19 and the radiology match: a residency program's survival guide to the virtual interview season. Acad Radiol 2020; 27:1294–1297.

31. Nwora C, Allred DB, Verduzco-Gutierrez M. Mitigating bias in virtual interviews for applicants who are underrepresented in medicine. J Natl Med Assoc 2021; 113:74–76.

32. Nguyen JK, Moran SK, Yee JM, et al. Moving towards equity, wellness, and environmental sustainability: arguments for virtual radiology residency recruitment and strategies for application control. Acad Radiol 2022; 29:1124–1128.

33. Domingo A, Rdesinski RE, Stenson A, et al. Virtual residency interviews: applicant perceptions regarding virtual interview effectiveness, advantages, and barriers. J Grad Med Educ 2022; 14:224–228.

34. Vallejo MC, Price SS, Vanek TW, et al. Virtual interviewing in the COVID-19 era: a survey of graduate program directors. J Dent Educ 2022; 86:535–542.

35. Anteby R, Sinyard RD, Jogerst KM, et al. Challenges of virtual interviewing for surgical fellowships: a qualitative analysis of applicant experiences. Surg Endosc 2022; 36:3763–3771.

36. Raymond-Kolker R, Grayson A, Heitkamp N, et al. LGBTQ+ equity in virtual residency recruitment: innovations and recommendations. J Grad Med Educ 2021; 13:640–642.

37. Kosyakovsky L, Shi H, Hu JR. Optimizing the virtual interview experience for residency and fellowship applicants. Acad Med 2022; 97:941.

38. Wong TY, Huang JJ, Cooke EA, et al. Adapting to the era of virtual recruitment: radiology departmental website response to COVID-19 and portrayal of the resident experience. Acad Radiol 2022; 29:771–778.

39. Carpinito GP, Caldwell KM, Kenigsberg AP, et al. Twitter and Instagram use in the urology residency application process. Urology 2022; 159:22–27.

40. Charkhchi P, Sahraian S, Beheshtian E, et al. Missed opportunity: neuroradiology training programs and social media. AJR Am J Roentgenol 2019; 212:1136–1141.

41. Panda A, Sharma A, Dundar A, et al. Twitter use by academic nuclear medicine programs: pilot content analysis study. JMIR Form Res 2021; 5:e24448.

42. Fang HA, Boudreau HBS, Khan S, et al. An evaluation of social media utilization by general surgery programs in the COVID-19 era. Am J Surg 2021; 222:937–943.

43. Heitkamp NM, Morgan LE. Virtual social events: an integral component of recruitment in the new era of graduate medical education. J Grad Med Educ 2021; 13:761–763.

44. Tanaka ME, Brideau HR, An TJ, et al. Utilization of a virtual information session to increase engagement with prospective applicants in the setting of COVID-19. Curr Probl Diagn Radiol 2021; 50:351–355.