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Video Interviewing: A Review and Recommendations for Implementation in the Era of COVID-19 and Beyond

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Due to the COVID-19 pandemic, it is very likely that many radiology residency and fellowship programs will adopt interactive videoconference interviewing for the 2020-2021 residency match cycle. Although video interviewing has become a common part of the hiring process for business, experience with video interviewing for resident and fellow selection has been limited. Advantages of video interviews over traditional on-site interviews include cost-savings to both applicants and residency programs, less disruption to an applicant's educational activities, and potential for training programs to access a wider pool of candidates. The loss of the casual interactions that occur during an on-site interview and the inability of candidates to evaluate training facilities and their surrounding environments in-person are among the obstacles posed by video interviews, but training programs can mitigate these challenges with enhanced website content and creative media solutions. Through a review of the existing literature and internet resources, this article recommends specific measures medical schools, applicants, and radiology residency and fellowship programs can take to optimize the virtual interview experience for all involved parties.

Key Words: Fellowship; Interview; Radiology; Residency; Videoconference.

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INTRODUCTION

The COVID-19 pandemic has wreaked havoc on our personal and professional lives, without any clear indication yet of when we might return to normal activities. In dramatic attempts to enforce social distancing as a way of slowing the spread of COVID-19, several states have issued “stay-at-home” orders and the US population is wary of traveling for fear of contracting the novel coronavirus; domestic air passenger volume has plummeted to 5% of what it was 1 year ago, and interstate automobile travel has been discouraged (1,2). Several academic medical centers have banned travel for their faculty and trainees during the pandemic. Locally, individuals are encouraged to maintain distances of at least 6 feet, wear masks, and refrain from handshakes. Travelling for an interview and the close personal interactions that go along with the traditional interview

process violate the principles of social distancing. Although it is too early to tell what might happen with regards to a second wave of infections by the time the radiology residency interview season begins in the fall, it is not too early to consider adopting the safest possible interview strategies during the current pandemic and beyond.

While diagnostic radiology residency programs typically use cognitive data such as test scores and medical school grades to screen applicants, the programs rely heavily on the interview process to determine a candidate's compatibility with their program as well as to rate the candidate's noncognitive skills (3,4). During this process, residency programs seek to identify candidates with such desirable attributes as strong interpersonal and communication skills, maturity, dependability, honesty, deep interest in the specialty, recognition of personal limitations, curiosity, conscientiousness, and confidence (5,6). In addition, many believe that the interview helps programs detect negative traits in applicants, such as anxiety or aggression (6). Finally, the interview day also serves as a recruitment tool for programs to attract the best candidates (7).

From the candidates' perspective, the interview day is used to form both subjective and objective opinions about program quality and compatibility that the candidates will use

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when they develop their rank lists (7). Candidates have found that a number of interview experiences are especially valuable, including one-on-one interviews with the program director and other faculty, getting a “feel” for the program, interacting with current residents, touring the program’s facilities, and viewing informational presentations about the program (8).

On March 19, 2020, the Association of American Medical Colleges (AAMC) issued a statement on its website strongly encouraging “. . . medical school and teaching hospital faculty to conduct all interviews with potential students, residents, and faculty in a virtual setting — either by phone or through video conferencing” (9). This was followed on May 11, 2020, by the Coalition for Physician Accountability’s more emphatic recommendation that “. . . all programs commit to online interviews and virtual visits for all applicants. . .” for the 2020–2021 residency application cycle (10). Telephone interviewing, though it could eliminate biases based on candidate and interviewer physical appearance, has the disadvantage of removing all nonverbal cues from the candidate-interviewer interaction (11). Another interviewing option that the AAMC has proposed is the asynchronous virtual interview, consisting of video-recorded answers to preset questions by the applicant, a process that eliminates the opportunity for any real-time interactions (12). This method, which has been piloted by Emergency Medicine program directors to screen applicants in recent years, has met with mixed reviews by both applicants and residency programs, leading the AAMC to end the pilot project this year (13). Interactive videoconference interviewing, on the other hand, allows candidates and interviewers to see one another in real time and to adjust their interactions accordingly, more closely replicating the traditional on-site interview (11,12). Therefore, it is more than likely that many radiology residency programs will adopt the interactive videoconference interview (hereafter referred to as “video interview”) for the upcoming 2020–2021 interview season. The idea of residency and fellowship video interviews is not a novel one, having been explored by other medical specialties (14–22).

In this article, we will examine the benefits and drawbacks of video interviews for resident selection, and through a review of the existing literature and Internet resources, make specific recommendations concerning how to optimize the virtual experience for all involved, while maximizing the information exchanged between candidates and radiology residency programs during the interview process. These recommendations are also applicable to radiology fellowship interviews, and perhaps with modification to faculty recruitment.

BENEFITS OF VIDEO INTERVIEWING

Interactive virtual interviewing using web-based videoconference platforms, such as Zoom (Zoom Video Communications, Inc., San Jose, CA), Skype (Microsoft Corp., Redmond, WA), WebEx (Cisco WebEx LLC, Santa Clara,

CA), GoToMeeting (LogMeIn, Inc., Boston, MA), or Google Hangouts Meet (Google LLC, Mountain View, CA) delivers several benefits over traditional on-site interviewing.

Financial

Perhaps the most obvious advantage of the video interview is the financial savings it offers to applicants, for whom the travel, lodging, and meal expenses incurred while interviewing represent substantial incremental expense in addition to already hefty medical school tuition bills. Based on the most recent annual survey of allopathic medical schools by the AAMC, interviewing for residency costs a student between \$1000 and \$11,580, with a median amount of approximately \$4000 (23). The cost for students choosing to interview at radiology programs is likely at the upper end of this range since these students interview at a mean of 16.9 programs, which is more than for applicants planning to enter many other specialties (24). This is not a negligible added financial burden, considering the fact that students now graduate from medical school with a median debt of \$200,000 (25). The costs may be especially problematic for students who are participating in the couples’ match and who are accumulating double the expense and debt. Videoconference interviewing could expand interview opportunities for students who, for financial reasons, have limitations on the number and locations of programs at which they can interview.

Residency training programs also incur costs with traditional on-site interviews that may be reduced with video interviews. These include expenses for pre-interview dinners as well as interview day breakfasts and lunches (17). While some authors have suggested that video interviews also save departments the costs of lost clinical productivity from faculty and current residents participating in on-site interview day activities, it could be argued that simply translating current in-person interview schedules to a videoconference platform will yield little, if any, cost benefit since the time commitment by faculty and residents is likely to be the same (17). Of course, any financial savings to programs would be especially welcome now, as many health systems are reporting large losses in revenue secondary to the pandemic (26).

Time

COVID-19 has upended medical student education in such a way that interview time may be limited for students, who may now have to make up for academic time lost during the pandemic. Applicants would save a great deal of time utilizing the video interview process (16). Even before the pandemic, residency applicants frequently cited scheduling conflicts with other interviews as a reason for declining interview offers (20,27). With nearly 200 accredited diagnostic radiology residency programs in the United States (28), there are simply not enough interview days to avoid all scheduling conflicts. By eliminating travel time, some of these conflicts could be resolved. Additionally, travel obligations add complexities for

students on scheduled rotations and detract from precious educational activities prior to graduation.

Other Considerations

Residency programs also stand to make some gains from applicants' increased willingness to interview at additional programs. In particular, applicants may be more likely to accept interviews at smaller or rural residency programs which they would have not otherwise traveled to in person. By increasing the likelihood of more geographically remote interview candidates, programs improve their chances of increasing geographic and cultural diversity within their resident cohorts.

Video interviewing also circumvents potentially hazardous and unpredictable travel for applicants to cold weather residency programs during the winter months, when most residency interviews are conducted and parts of the country are cloaked in snow and ice. This can occasionally lead to last minute cancellations by medical students and, rarely, to a program's need to completely reschedule interview days.

Finally, as many organizations have begun to focus on environmental sustainability, minimizing interview travel leaves a smaller carbon footprint.

DRAWBACKS OF VIDEO INTERVIEWING

In comparison with traditional on-site interviews, video interviews pose several challenges.

For residency candidates, a major drawback of videoconferencing interviewing is the inability to meet informally and strike up casual conversations with current residents and faculty on the interview day, such as at breakfast or lunch gatherings. Many applicants find such interactions to be valuable, as this allows them to get a sense of a program's culture and resident satisfaction (7,8).

When not on-site, students are also unable to tour the training facility and witness normal daily operations firsthand. Applicants also cannot attend the departmental teaching conference in person, an activity frequently utilized on the interview day schedule to expose the candidates to the program's teaching faculty. Additionally, applicants are unable to personally evaluate the surrounding neighborhood and the town on interview day, activities that may allow them to form an impression about whether they would be happy living in the area for 4 or 5 years (16).

There are also potentially problematic technical issues for applicants. Some students may lack access to a quiet, professional background setting in which to hold a videoconference. Some students may not possess the appropriate technology, such as a computer with a good quality camera and high-speed Internet (22).

Videoconferencing interviewing introduces some challenges for residency programs as well. Applicant behavior through informal interactions with current residents, faculty, and staff on interview days, behaviors that programs often find to be

very informative, cannot be observed. Scheduling difficulties may also arise when applicants are in schools in different time zones (19). Finally, since invited applicants face fewer obstacles in participating, it is conceivable that applicants who might have otherwise declined interviews because of a lack of genuine interest in a program will take up interview spots in that program, spots that, from a program's perspective, might be better offered to other applicants. The result might be the necessity of the residency program to interview more candidates or risk not filling all allotted positions.

Finally, video interviews differ intrinsically from in-person interviews in three main respects (29):

- 1) Video interviews may suffer from poor synchronization between audio and video signals resulting in less fluid conversations.
- 2) Transmission of nonverbal cues is less pronounced in video interviews than in person.
- 3) Visualization of the other person is limited to head and torso by videoconferencing.

These factors may result in video interviews altering both applicant reactions and interviewer ratings (29). In fact, studies have shown that, compared to in-person interviews, applicants react less favorably to video interviews. Similarly, interviewer ratings of applicants are lower with video interviews (11,29).

Fortunately, there have been rapid improvements in technology since the previously cited studies were performed. As a result, factors 1 and 2, above, may now play a smaller role in applicant and interviewer perceptions (11,29).

PREVIOUS EXPERIMENTS WITH VIDEO INTERVIEWING FOR RESIDENT AND FELLOW SELECTION

US residency and fellowship programs in several other specialties have experimented with videoconference interviewing and have published their experiences.

In one of the first studies, video interviews were offered to candidates for the University of Arizona ophthalmology residency program in December 2010 (15). Twenty-seven candidates were interviewed in person and 21 were interviewed by video using Microsoft's Skype platform, with 12 of the latter group taking an optional in-person departmental tour. Although the total amount of time interviewing differed considerably between the groups (2 hours for in-person interviews versus 30 minutes for interviews by video), there was no statistically significant difference in the number from each group ranked within the top 25 by the program (13 in-person and 12 video candidates), and all surveyed faculty interviewers indicated they would consider videoconference interviewing for future residency selections (15).

In another study during the 2010-2011 match cycle, the University of New Mexico urology residency randomized 33 applicants to video or on-site interviews and then re-

interviewed all applicants via the opposite process several weeks later (16). Those candidates interviewing by video were provided with a video tour of the facility and city and the contact information of the current residents in order to ask questions. Although the postinterview survey of participants showed the web-based interview process reduced their costs and significantly decreased their time away from school, the applicants perceived it as less effective than the on-site interview in allowing them to accurately represent themselves, felt the facility/city tour was not sufficient, and were less comfortable ranking the program based on the videoconference interview. A similar distribution of applicants from the two groups on the rank lists suggested that faculty were not biased by interview modality, although surveyed faculty indicated they subjectively felt more comfortable ranking candidates after on-site interviews (16).

Healy and Bedair video interviewed 52 orthopedic surgery residents for their adult reconstruction fellowship over 3 years and surveyed the candidates and faculty afterward (21). They provided their candidates with a copy of the fellowship manual and a video tour prior to the interview. The surveyed faculty were satisfied with the information they gathered and the time they saved by using the videoconference format. However, 15% of the candidates felt they did not have an opportunity to present themselves to their satisfaction using this format. Nineteen percent were not comfortable ranking the program after the video interviews and 34% felt video interviews had an unfavorable impact on their ranking of the program (21).

In the largest reported cohort to date, Vadi et al. conducted a prospective observational study of applicants to their anesthesiology residency program in 2014–2015, offering applicants a choice between in-person interviews and video interviews (22). All applicants completed 10-minute interviews with three or 4 faculty members, 127 in-person and 42 by videoconference. Those interviewing in person were invited to dinner with current residents the night before the interviews, were given a program overview via slide presentation by the residency program director, toured the medical center, and met with the current residents for a lunchtime question and answer session (22). To substitute for these experiences, videoconference candidates were provided access to a video tour of the medical center and surrounding community, audio and video versions of a program overview by the residency director, and were invited to Google Hangouts chat sessions with current residents available twice each interview day (22). Applicants in both groups were offered optional postinterview departmental tours. Ultimately, the authors found no significant differences between the 2 groups in ranking and admission, concluding that “web-based interview applicants were committed candidates who ranked our program highly enough to gain admission” (22).

Smaller scale trials of video interviewing for trainee selection in plastic surgery, gastroenterology, family medicine, and internal medicine have also been published (14,17–19). One of these compared direct and indirect costs to a family

medicine program for video and in-person interviews, noting a substantial cost savings to the program with the video interviews, although some of this difference was attributable to the shorter interviewing time by video (150 minutes of total interviewer time by video versus 390 minutes of interviewer time on-site) (17).

In summary, published studies to date have shown that video interviewing reduces costs for applicants and residency programs (16,17). Faculty satisfaction with the process tends to be favorable (15,16,21). Applicant perceptions of the video interview vary; however, this may relate to details of supplemental information provided, interview length/format, and additional opportunities for interaction with current residents/fellows rather than the videoconference format itself (14–21).

OPTIMIZING THE VIRTUAL INTERVIEW EXPERIENCE

Medical schools, applicants, and radiology residency programs can take specific measures to minimize connectivity problems and help make the videoconference interviewing process less stressful and more productive for applicants and residency programs (Tables 1 and 2).

Suggestions for Medical Schools

- Offer mock video interviews: Schools can help students prepare for their virtual experience, with specific attention to practicing videoconferencing skills (see below).
- Create interview rooms: Schools can provide quiet rooms with computers, high-speed Internet, cameras, microphones, lighting, and professional backgrounds for students on their campuses (22). These can be used for practice as well as actual interviews.

Suggestions for Applicants

- Find an appropriate setting: If designated interview rooms are not available at his or her medical school, the applicant

TABLE 1. Videoconference Interview Checklist for Applicants

- Find an appropriate setting for videoconference interviewing
- Optimize technology set-up
- Test technology before the interview
- Practice videoconference interviewing skills
- Be prepared with questions for interviewers and for informal sessions with current residents
- Dress and groom professionally
- Contact the program immediately in case technical problems arise during the interview

TABLE 2. Videoconference Interview Checklist for Residency Programs**Long-term preparation**

- Produce program overview video or PowerPoint
- Produce video tour of facility, surrounding neighborhood, and city
- Update and enhance program website
- Critically review existing interview processes

Interview day scheduling

- Consider scheduling options for applicants in different time zones
- Schedule buffer time between interviews
- Include program overview presentation and virtual facility tour
- Schedule time for applicants to chat online with current residents

Technology optimization

- Provide applicants with clear instructions and technology testing opportunities before the interview
- Prepare interviewers to use technology
- Provide interviewers with applicant phone contact information in case of video disconnection
- Hire a technology assistant for help on interview day

Post interview follow-up

- Follow up with applicants to ensure no technology problems arose during interview
- Offer optional in-person tours, if possible

will need to find another quiet place with a neutral professional background in which to interview. The interview area should be well-lit and free from distractions such as pets or people. Home phones, cell phones and pagers should be silenced (19).

- **Acquire and test technology:** The applicant will need access to a computer with the appropriate system requirements for the application being used and adequate internet bandwidth. A wired Ethernet connection will minimize problems with latency, frozen screens, poor audio quality or disconnections (30). A laptop computer should be plugged in to a power source since videoconferencing can quickly drain the battery. Other computer programs should be closed to minimize distracting or embarrassing pop-ups and to maximize computing power to the video-conference software. The video camera should be angled slightly downward, if possible, to give the effect of eye contact and to optimize facial appearance (19). The applicant should test their connection with the residency program prior to the interview (if that option is offered) or with a friend.

- **Practice good video interviewing skills:** Practicing will help to cement good habits like looking at the camera when answering, sitting still and leaning forward, and keeping one's hands still. The applicant should avoid a chair with wheels to eliminate involuntary swiveling motions. One should also resist watching oneself while speaking, which can be prevented by closing the self-view window. Shuffling notes and papers during the interview should also be avoided as much as possible, since this sound can be transmitted loudly and be a distraction for the interviewer (19,31).
- **Prepare as if having an on-site interview:** Applicants should thoroughly review program websites and supplemental information provided beforehand by training programs and come prepared with a list of questions (21,31).
- **Dress and groom as if having an on-site interview:** Candidates should dress professionally from head to toe (19,31).
- **Notify the program if there are technical problems with the interview:** If there are connection problems early during the interview, it is acceptable to suggest stopping temporarily and reconnecting. If technical difficulties occur later or are repeated throughout the interview, the applicant can inquire about the protocol for a repeat interview (19).

Suggestions for Radiology Residency and Fellowship Programs

- **Offer scheduling options at different times of the day:** To accommodate candidates in other time zones, both morning and afternoon time slots could be offered (19). It has been suggested that video interviews could even be conducted during evening or weekend hours to avoid loss of clinical productivity, although this would come at the expense of the interviewers' leisure time (15).
- **Schedule buffer time:** If scheduling back-to-back interviews, programs must allow buffer time between each interview, since interviewers and applicants need time to connect (12).
- **Provide applicants with clear instructions and technology testing opportunities before the interview:** Programs should send applicants instructions on opening a video-conference software account, if needed, at least one month prior to the interview and arrange a test connection for each applicant with the program coordinator the week preceding the interview (16).
- **Retain a technology assistant's services on the interview day:** Having a technology assistant immediately available will minimize interview failures and give interviewing faculty and applicants some comfort (21).
- **Prepare interviewers:** Short tutorials on using technology should be provided on or prior to the interview day (16). Interviewers should have necessary login information, a copy of the days' interview schedule, candidates' contact information (e.g., phone number and/or email) in case

they are disconnected, and contact information for technology support (12).

- Follow-up with candidates after the interviews: Programs should reach out to the candidates after the interviews to ensure that there were no technical problems with the interviews and to make sure the applicants have no unanswered questions (19). Surveying candidates anonymously will also help improve the future interview process.

MAXIMIZING INFORMATION EXCHANGED DURING THE VIDEO INTERVIEW PROCESS

The traditional interview day is a two-way exchange of information between candidates and residency programs, with candidates and programs both evaluating each other while highlighting their own strengths. Aside from interactions in formal interviews, candidates place high value on multiple components of the typical interview day program, including interacting with current residents, touring the facility, and viewing informational presentations about the program (8). Residency programs will need to plan ahead to employ creative solutions to substitute for these experiences when video-conference interviewing is used (Table 2). For example, a program overview video presentation or PowerPoint presentation with recorded audio including commentary from the program director, current residents, and selected faculty could help to deliver objective information as well as convey an overall “feel” of the program. Similarly, programs may consider developing a video tour of their facilities to give applicants an idea of the physical environment; some information about the surrounding neighborhoods and the city in which the program is located could be included as well, to give applicants a sense of the area in which the program is located. Institutional graduate medical education or marketing offices would likely be helpful in developing such videos. To provide candidates a chance to gauge resident morale and to look for any “red flags,” programs should also consider scheduling videoconference question-answer sessions with current residents. These activities and others should be arranged in a similar fashion as they would be for on-site interview day activities. Programs could also offer optional in-person department tours at a later date, if an applicant so desires, although these would have to be executed carefully, without violating any in-place social distancing guidelines and rules about postinterview interactions, as set forth by the Accreditation Council for Graduate Medical Education (ACGME).

Now more than ever, residency programs must maintain comprehensive, up-to-date program websites. Applicants have stated that they find these websites helpful in deciding where to apply and where to interview (32). According to one survey, radiology applicants also found the program website an important source of information in ranking programs, just behind information received from the current residents, program director and interviewing faculty (7). Respondents in another survey of radiology applicants considered “necessary” website content to include lists of current residents and

faculty, directions to the hospital, campus maps, a description of the application process with interview dates and itinerary, listing of fellowships and jobs obtained by recent alumni, department updates and news, benefit/salary information, and the academic schedule (8). Surprisingly, recent content analysis of 179 radiology residency websites shows that, on average, programs include only 60% of the desired information, with many programs not including a comprehensive faculty listing, information about rotation or call schedules, descriptions of research, information on fellowship placement, salary numbers, and messages from chairpersons and program directors (33).

In fact, programs could consider using this shift from on-site to video interviews to reassess features of what are admittedly imperfect interview practices and to make improvements. A 2015 systematic review showed mixed results as to whether interview performance could predict future success in residency. The authors of this review suggested replacing the traditional unblinded, unstructured interview with a more reliable and rigorous methodology (6). Although they lacked sufficient evidence to recommend a specific interview format, the authors suggested standardizing the questions asked of every applicant (i.e., structuring the interview), using a scoring rubric to improve inter-rater and intrarater scoring, and blinding the interviewer to cognitive application data to minimize bias (6). According to a 2017 survey of diagnostic radiology program directors, a large majority of programs continue to use the traditional unblinded, unstructured interview technique, with only 22% incorporating structured questions (4). On its webpage addressing the issue of conducting interviews during the coronavirus pandemic, the AAMC provides a link to its best practices for conducting residency program interviews. These best practices address issues related to interview structure and interviewer training in detail (34).

CONCLUSION

Based on several single-institution experiences, the video interview offers a feasible alternative to the in-person interview for radiology resident selection. For medical students, this comes with the added benefits of financial and time savings, and for residency programs, it offers cost savings and an opportunity to add diversity in geographic and cultural representation. Medical schools, applicants, and radiology residency programs should take specific steps to optimize the virtual interview experience for all involved parties, steps that have been summarized in this review. Through enhanced website content, creative media solutions, and implementation of best practices for interviewing, residency programs can ensure that candidates and programs will be well positioned to make important ranking decisions in the 2020-2021 residency match cycle, when video interviews are likely to be a standard practice.

Once we emerge from the pandemic, will we return to traditional interviewing, or will on-site interviews become

obsolete, like hard copy films, hotlights, alternators, transcriptionists, and oral board exams (35)? Whether video interviews will become the “new normal” after the 2020–2021 interview season remains to be seen, but the upcoming interview cycle will present radiologists with valuable opportunities to evaluate the effectiveness and impact of video interviewing in resident and fellow selection utilizing both further single institutional and much needed multi-institutional studies.

DECLARATION OF COMPETING INTEREST

None

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