

# We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,000

Open access books available

148,000

International authors and editors

185M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index  
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?  
Contact [book.department@intechopen.com](mailto:book.department@intechopen.com)

Numbers displayed above are based on latest data collected.  
For more information visit [www.intechopen.com](http://www.intechopen.com)



# Virtual Interviewing for Residency/Fellowship during the COVID-19 Pandemic

*Jameson Petrochko, Jeffrey Panting-Crespo, Christopher Smith, Megan Minor, Holly Stankewicz, Thomas McGinley, Meredith Harrison, Erin Bendas and Stanislaw P. Stawicki*

## Abstract

Virtual interviewing for graduate medical education (GME) had been experimented with on a small scale in the late 2000s and early 2010s, but it became a necessity for the 2020–2021 match season as a result of the COVID-19 pandemic. We will briefly discuss the history of virtual interviewing and the published literature on virtual interviewing in GME. Based on the literature and recommendations from various organizations, we address preparation for virtual interviews including special considerations for programs and fellowships. We discuss the pros and cons of virtual interviewing both in order to better understand the current situation and to make informed choices moving forward regarding continuation of virtual interviewing versus returning to in-person interviewing.

**Keywords:** virtual interviews, residency, fellowship, graduate medical education, covid, coronavirus, covid-19

## 1. Introduction

The origin of virtual meeting dates back to the 1870s when the concept of transmitting an image alongside audio over wire was introduced. In 1927 the first video conference was held between Washington, DC and NYC with a two-way audio feed and one-way video feed. However, the first publicly available commercial/residential video conferencing product, Picturephone Mod II, wasn't available until 1970 [1]. Nearly 40 years later in 2009, video for graduate medical education interviews was introduced and recorded in the literature [2]. In the years since, several small-scale experiments of video interviewing (VI) have been performed comparing VI to face-to-face interviewing (FTFI) [3–7]. Only one program performed a randomized trial of VI versus FTFI [8] and one other piloted all-virtual interviewing [9].

One constant among the results of the numerous studies was that VI is significantly less costly to applicants than FTFI [6, 8, 10, 11]. It has been hypothesized that this may inflate the number of programs that applicants apply to [10], knowing that they would not have to pay travel, lodging, and meal expenses. Having a greater number of applications to sort through could impair the ability of programs to evaluate each applicant holistically [12]. Proposed solutions include limiting the

number of programs each applicant can apply to [13] and introducing the ability to ‘signal’ a limited number of high-interest programs [12]. Another agreed-upon benefit of VI is that it would result in less time away from work/school for applicants [8, 10, 11] by eliminating travel days. This is likely a more significant benefit for current residents [6] who often require coverage for days taken off. Faculty and interviewers tended to respond favorably to VI [8, 14] and felt that they were able to adequately evaluate the candidate. Results varied significantly, however, when it came to applicant perceptions. Some studies showed that applicants were comfortable with VI [7, 9, 14] but many demonstrated that applicants were generally dissatisfied with VI [4, 6, 10, 15]. Common complaints included limited informal and social interaction [10, 11], decreased non-verbal communication [16], and inability to adequately present themselves [6]. Applicants also perceived an inability to gain a feel for the hospital and city [10, 11, 16], but inexpensive smart-phone virtual reality may offer a solution to this problem [17]. Lastly, applicants at times felt uncomfortable ranking programs that they interviewed for virtually, and noted a negative effect on how they ranked the program [9].

Virtual interviewing in GME did not catch on for the first decade or so, likely because the downsides of poor applicant satisfaction and perception of the program via VI outweighed the benefits of cost savings and convenience compared to the traditional FTFI. The outbreak of COVID-19 and subsequent travel restrictions has left VI as the most viable solution for GME interviews in the 2020–2021 match season. How VI affects rankings/admissions compared to FTFI is unclear [3, 5, 7] but the playing field was level as no one conducted FTFI for the season. Similarly, the possible negative impact of VI on applicant and program ranking relative to FTFI could not occur without FTFIs. As a result of the move to all-virtual interviewing, there has been an explosion in the amount of ‘how-to’ papers both in the medical literature and by various organizations and institutions with suggestions on how to best interview virtually.

It is possible that VI will continue to remain a part of GME interviewing past the 2020–2021 interview season, and as such it’s important for applicants and programs to understand how to prepare in order to make the best impression. Understanding the pros and cons of virtual interviewing will benefit all parties as we plan for and navigate this new era of interviewing.

## 2. Methods

To collect content for the literature review portion of this chapter, a literature search was conducted by inputting the phrase “virtual interviewing graduate medical education” into Pubmed, Google, and Google scholar. The references sections of included articles were reviewed to find additional articles. Colleagues forwarded to the authors several articles that did not appear in the search results. Articles that were not written in English or not relevant were excluded.

## 3. General considerations

A major key to success is to approach the virtual interview as an in-person interview [18, 19]. The following general considerations that apply for in-person interviews should be followed for virtual interviews (See **Table 1**).

**Dress Professionally** – Professional attire should be worn as if one were interviewing in-person (i.e. head-to-toe professional attire).

Dress Professionally	Professional attire should be worn head to toe as if performing an in-person interview.
Punctuality	This goes both ways; lack of punctuality is seen as being disorganized and scattered.
Eye Contact	Position the camera as to allow for as best eye-to-eye contact as possible.
Reliable Internet Connection	Wired is preferred over wireless as it is more stable and less prone to disconnects.
Ensure Operational Hardware	Both the microphone and camera should be tested beforehand.
Distraction Free Area	Ideally should have a neutral background in a silent room, preferable to avoid bedroom or kitchen.

**Table 1.**  
*General considerations.*

**Be On-Time** – On time for an interview is generally accepted as 10–15 minutes prior to start time. Many virtual interviews are set up that interviewees meet in a virtual waiting room prior to moving to individual breakout rooms.

**Maintain Eye Contact** – Being mindful that virtual eye contact is not true eye contact is the first step in bridging this personal disconnect. Many recommendations are found online to optimize screen setup to assist with virtual eye contact. Also be cognizant of other non-verbal behaviors as one would in person.

virtual interview specific considerations:

**Reliable Internet Connection** – A wired connection via ethernet cable is more stable than “A” wireless connection, with less interference and more reliability.

**Ensure Operational Mic/Camera** – In addition to a functional computer, required equipment includes a high-definition camera and a reliable microphone setup. Test audiovisual equipment prior to interview start to ensure full functionality without issue.

**Keep Area Free from Distractions** – The background not only will impact the perception of the interviewee but may also act as a distraction during the interview. Some helpful suggestions:

- Use of neutral background
- Use of quiet room
- Silence all cell phones, computer alerts, etc.
- Arrange care of children, pets, etc.

#### 4. Fellowship considerations

Outside of the obvious focus on clinical and research experience, the fellowship and residency interview share a great deal of overlap with each other. However, unique fellowship considerations may focus on fellowship size and length of training, the potential for faculty retention, unique scheduling challenges, and the concept of no-longer-a-resident-not-quite-an-attending.

Fellowship programs are generally smaller than residency programs and many are often limited to one or two trainee positions per year [20]. Compared with prior

residency training, trainees may experience less sense of camaraderie with a potential for learner isolation. Residency length of training ranges from three to seven years, whereas advanced fellowship training typically ranges from one to three years [20]. The accelerated nature of subspecialty training may hinder trainees ability to form professional relationships within the training institution.

Fellows may remain on as faculty after training, therefore, applicants not only interview as a potential fellow, but as a future colleague. Interviewees should observe personal congruence with institutional culture and harmony within the team dynamic. Bear in mind that a positive institutional culture engenders an equitable framework which celebrates diversity, inclusivity, and accessibility of care which, in turn, fosters the development of learners with aligned values.

Fellowship interview scheduling during residency poses a unique challenge to ensure adequate resident coverage and to limit duty hour violations [21]. Virtual interviews allow for greater flexibility in scheduling between resident shifts with minimal time off required for travel, lodging, and geographic clustering of multiple institutional interviews [21].

Overall, the virtual interview adds a unique opportunity to addressing these unique fellowship considerations. As the old proverb goes, necessity is the mother of invention.

## **5. Program considerations**

A program's preparation for virtual interviewing is very similar to the preparation for fellows and residents in the setup of their space, including lighting, reliable internet, and a quiet, professional environment. Reviewing applications should be done prior to the start of the interview to improve time management and maximize their ability to get to know the applicant. Having an idea of what questions they want to ask of the applicant can also aid in the flow of the interview itself. Programs should ensure that the interview platform they are using is easy to follow and easy to explain to applicants. For example, a platform in which the applicant can stay in one "room" or on one link and the interviewers come to them helps to eliminate some of the stress for the applicant. They click on one link and everyone comes to them. When selecting interviewers, programs need to consider that the applicants likely will not be able to see their facility or meet with the residents and faculty and see how they interact. They may want to consider having a current resident do interviews or perhaps schedule a meet and greet with current residents before or after the formal interviews, so that applicants can get a feel for the culture of the program. Virtual tours may also be necessary to show the hospital and the area. If possible, allowing applicants to visit the hospital for an "in person" look is a good idea. Allowing for some flexibility and understanding the stress that may be associated with virtual interviews is imperative for everyone involved. However, staying organized and planning ahead can certainly help decrease some of those stressors.

## **6. Pros of virtual interviewing**

### **6.1 Financial**

Every fall, medical students from all over the country embark on the beginning of their interview and match season. Medical students are well known for having invested a significant amount of both time and financial resources to get this far in their journey. According to the most recent reports by the AAMC, the average

medical student debt by the time of graduation has surmounted over \$200,000 [22]. Of note, according to the most recent AAMC annual survey, interviewing for residency costs a student between \$1000 and \$11,580, with a median amount of approximately \$4,000 [23]. Virtual interviewing may potentially broaden interview opportunities for students who would otherwise not be able to attend interviews due to lack of financial capacity.

Another important factor to consider is the financial implications for residency programs themselves. Social events like the pre interview dinner and interview day meals as well as time off clinical duties from key faculty. The use of virtual interviewing may decrease lost productivity in times where the pandemic has already caused massive revenue losses for hospital networks [24].

## **6.2 Time**

It has long been a matter of concern that medical students miss out on valuable clinical training during their interview season, that lost time may lead medical students to lose valuable practice with key clinical skills needed during the beginning of their intern year in July. At the same time, several residency programs throughout the country have conflicting interview schedules, leading many medical students to have to choose between two equally attractive programs [8]. Eliminating travel time has the potential to decrease idle time by over half and allow students to attend more desired interviews. At the same time, faculty performing interviews may potentially lose less time as they may schedule their interviews remotely.

## **6.3 Advantages for rural programs**

Another potential advantage is smaller, rural programs may potentially have an increased pool of applicants that would not have otherwise been able to travel to remote locations. This has the potential of providing cultural and ethnic diversity to a programs pool of residents.

## **6.4 Advantages for foreign medical graduates**

There is a large pool of competitive foreign medical graduates that may not be able to come to the US or an interview secondary to visa constraints, or they may be hard pressed to attend multiple interviews at different sites due to financial constraints. Video interviewing makes it incredibly practical for these qualified applicants to get the opportunity they deserve and help level the playing field. This is of particular importance in the current day and age, where there is a shortage of USMDs entering primary care specialties and these spots are increasingly being filled by FMGs.

# **7. Potential cons of virtual interviewing**

## **7.1 Behavioral aspect**

It is a well-known fact that while a candidate may look good on paper, that candidate's personality may or may not be a good fit for the respective program's culture. Personality plays a large role in how well a trainee fits in, and how happy and satisfied they are with their peers; this in turn has an effect on their medical training, how comfortable they feel approaching their faculty and coresidents. Without a doubt, in person interactions facilitate the observation of nonverbal cues,

body language and micro facial expressions, which in turn, allow the interviewer a better grasp on how good a fit the respective applicant is for the current program. The concern with video interviewing being that it is harder to gauge these interpersonal skills. Fortunately, in the author's personal experience this interview season's high quality video streaming has allowed a better-than-expected measure of noncognitive and interpersonal skills. The accuracy of our interpretations remains to be seen.

## **7.2 Living situation**

Another aspect to consider is that the future resident will be living in the area for the next 3–7 years depending on their program. It is difficult to gauge whether one will be happy living somewhere without having been physically there and evaluating potential neighborhoods, school districts and recreational activities.

## **7.3 Number of applicants**

It is possible that programs will be faced with higher numbers of applicants as it is easier for students to schedule interviews virtually for the reasons discussed a priori. However, it is possible applicants will be attending program interviews they have no genuine interest in, just to adjust to the new playing field. This may need to be circumvented by programs interviewing more applicants.

## **8. Response to the current match**

Although long-term follow-up will be the greatest indicator of success of for virtual interviewing in the 2021 NRMP match, initial analysis suggests that the first large-scale test of virtual interviewing in GME was a success. Despite a 2.3% year-over-year increase in the number of available PGY1 positions, the percentage of unfilled positions decreased by 0.3% [25]. The 2.3% decrease in number of applicants that successfully matched is likely driven by the (6.0%) increase in the number of match lists submitted [25] rather than an inability to connect programs to applicants. This is evidenced by a similar distribution of interviews conducted as compared to prior years [26], alleviating concerns that a disproportionately high proportion of interviews would go to a small group of highly-qualified individuals while a large portion of the applicant pool went unnoticed. While large-scale surveys of how applicants and programs feel about the match are sure to come, at least objectively the initial results are promising.

## **9. Future of virtual interviewing**

In the near future, trends in the number of current and new COVID-19 cases, as well as vaccination rates, will determine when a return to in-person interviewing can be safely considered. Once a return to in-person interviewing is considered safe, the question shifts from 'can we?' to 'should we?'. The response to this question will likely be driven by large-scale analysis of program and candidate satisfaction and preferences, as well as in-depth analysis of the downstream effects on GME. Such analysis should include whether candidates that interviewed virtually tend to be considered a good 'fit' for their programs, which will not be known until well after the first class of virtual interviewees starts residency in July 2021.

One possibility to consider is a hybrid approach [27], and although there are many ways to implement this, the overall goal would be to minimize social contact while maximizing the ability of the program and candidate to evaluate each other for fit. Even an in-person campus visit would afford an opportunity to for the candidate to interact with faculty and residents in a nonformal in-person manner [28].

## 10. Conclusion

Virtual interviews seem daunting at first, but the main recommendation is to prepare in a similar fashion as for a virtual interview, plus making sure that one's technology is functional and home/office environment are appropriate. The main benefits of VI are decreased cost and increased access for rural and/foreign medical school students, while the main potential disadvantages are a decreased ability to assess 'fit' and the potential to inflate the number of interviews each candidate takes.

A major question emerges from the 2020–2021 (predominately virtual) interview season: 'What to do moving forward?' Further research is required to focus on the overall impact of the virtual interview as compared with the traditional in-person interview, the financial impact of virtual interviews during the 2020–2021 match season versus prior match seasons, and identifying virtual interview techniques to better discern applicants' personality to determine fit within a program.

Whether there is a return to in-person interviewing, a refinement of the virtual interview, or a hybridization of the two, the 2020–2021 interview season highlighted a deviation from the established way we interview for Graduate Medical Education.

### Author details

Jameson Petrochko, Jeffrey Panting-Crespo, Christopher Smith, Megan Minor, Holly Stankewicz, Thomas McGinley, Meredith Harrison, Erin Bendas and Stanislaw P. Stawicki\*  
St. Luke's University Health Network, Bethlehem, PA, USA

\*Address all correspondence to: [stanislaw.stawicki@sluhn.org](mailto:stanislaw.stawicki@sluhn.org)

### IntechOpen

© 2021 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

## References

- [1] Wolfe, Erinn. The History of Video Conferencing from 1870 to Today. *Lifesize*. [Online] <https://www.lifesize.com/en/video-conferencing-blog/history-of-video-conferencing>.
- [2] *Live online video interviews dramatically improve the plastic surgery residency application process*. Melendez MM, Dobryansky M, Alizadeh K. 1, 2012, *Plast Reconstr Surg*, Vol. 130, pp. 240e-241e.
- [3] *Efficacy of Videoconference Interviews in the Pediatric Surgery Match*. Nicole M Chandler, Cristen N Litz, Henry L Chang, Paul D Danielson. 2, 2019, *J Surg Educ*, Vol. 72, pp. 420-426.
- [4] *Interview from anywhere: feasibility and utility of web-based videoconference interviews in the gastroenterology fellowship selection process*. Sumanth R Daram, Ruonan Wu, Shou-Jiang Tang. 2, 2014, *Am J Gastroenterol*, Vol. 190, pp. 155-159.
- [5] *Residency interview video conferencing*. Sirichai Pasadhika, Todd Altenbernd, Richard R Ober, Erin M Harvey, Joseph M Miller. 2, 2012, *Ophthalmology*, Vol. 119, pp. 426-426e5.
- [6] *Virtual Interviews for the Independent Plastic Surgery Match: A Modern Convenience or a Modern Misrepresentation?* Ravinder Bamba, Neel Bhagat, Phu C Tran, Evan Westrick, Aladdin H Hassanein, William A Wooden. 2020, *J Surg Educ*.
- [7] *Comparison of web-based and face-to-face interviews for application to an anesthesiology training program: a pilot study*. Marissa G Vadi, Mathew R Malkin, John Lenart, Gary R Stier, Jason W Gatling, Richard L Applegate 2nd. 2016: s.n., *Int J Med Educ*, pp. 102-108.
- [8] *Randomized evaluation of a web based interview process for urology resident selection*. Satyan K Shah, Sanjeev Arora, Betty Skipper, Summers Kalishman, T Craig Timm, Anthony Y Smith. 2012, *J Urol*, pp. 1380-1384.
- [9] *Videoconference Interviews for an Adult Reconstruction Fellowship: Lessons Learned*. William L Healy, Hany Bedair. 2017, *J Bone Joint Surg Am*, p. e114.
- [10] *Video Interviewing: A Review and Recommendations for Implementation in the Era of COVID-19 and Beyond*. Aparna Joshi, David A Bloom, Amy Spencer, Kara Gaetke-Udager, Richard H Cohan. 9, 2020, *Acad Radiol*, Vol. 27, pp. 1316-1322.
- [11] *Feasibility and Usability of Tele-interview for Medical Residency Interview*. Ali Pourmand, Hayoung Lee, Malika Fair, Kaylah Maloney, Amy Caggiula. 1, 2018, *J Emerg Med*, Vol. 19, pp. 80-86.
- [12] *Otolaryngology Residency Interviews in a Socially Distanced World: Strategies to Recruit and Assess Applicants*. David W Chou, Steven D Pletcher, David Bruss, C Kwang Sung, Rodney C Diaz, Jonathan Liang, Megan L Durr. September 2020, *Otolaryngol Head Neck Surg*, p. Epub ahead of print.
- [13] *Proposed Changes to the 2021 Residency Application Process in the Wake of COVID-19*. Andrew T Gabrielson, Jaden R Kohn, Hayley T Sparks, Marisa M Clifton, Taylor P Kohn. s.l.: 95, 2020, *Acad Med*, Vol. 9, pp. 1346-1349.
- [14] *Virtual Surgical Fellowship Recruitment During COVID-19 and Its Implications for Resident/Fellow Recruitment in the Future*. Charles C Vining, Oliver S Eng, Melissa E Hogg, Darryl Schuitevoerder, Rebecca S Silverman, Katharine A Yao, David J Winchester, Kevin K Roggin, Mark S Talamonti, Mitchell C Posner, Kiran K Turaga, Jennifer Tseng. 2020, *Ann Surg Oncol*, pp. 911-915.

- [15] *Initial Experience with a Virtual Platform for Advanced Gastrointestinal Minimally Invasive Surgery Fellowship Interviews*. Arnab Majumder, Shaina R Eckhouse, L Michael Brunt, Michael M Awad, Francesca M Dimou, J Christopher Eagon, Sara Holden, Heather Fone, Jeffrey A Blatnik. 6, 2020, *J Am Coll Surg*, Vol. 231, pp. 670-678.
- [16] *Perception of medical students and residents about virtual interviews for residency applications in the United States*. Ali Seifi, Alireza Mirahmadizadeh, Vahid Eslami. 8, 2020, *PLoS One*, Vol. 15.
- [17] *Using virtual reality as a replacement for hospital tours during residency interviews*. Juan-Pablo Zertuche, Jeremy Connors, Aaron Scheinman, Neil Kothari, Kristin Wong. 1, 2020, *Med Educ Online*, Vol. 25.
- [18] AAMC. *Virtual Interviews: Applicant Preparation Guide*. [Online] 2020.
- [19] *Brave New World: Challenges and Opportunities in the COVID-19 Virtual Interview Season*. Tirath Y Patel, Harprit S Bedi, Lori A Deitte, Petra J Lewis, Mary Victoria Marx, Sheryl G Jordan. 10, 2020, *Acad Radiol*, Vol. 27, pp. 1456-1460.
- [20] FREIDA. *American Medical Association*. [Online] <https://freida.ama-assn.org/>.
- [21] *The Burden of the Fellowship Interview Process on General Surgery Residents and Programs*. Shawna L Watson, Robert H Hollis, Lasun Oladeji, Shin Xu, John R Porterfield, Brent A Ponce. 1, 2017, *J Surg Educ*, Vol. 74.
- [22] Association of American Medical Colleges. Statement for the record submitted by the Association of American Medical Colleges (AAMC) to the house of representatives committee on small business: "The Doctor is Out. Rising Student Loan Debt and the Decline of the Small Medical Practice."
- [Online]: <https://www.aamc.org/system/files/c/1/498034-aamcstatementtothehousesmallbusinesscommitteeregardingmedicaled.pdf>.
- [23] —. The cost of interviewing for residency. [Online] <https://students-residents.aamc.org/financial-aid/article/cost-residency-interviews/>.
- [24] TC, Frankel and T, Romm. Historic financial decline hits doctors, dentists, and hospitals - despite Covid - 19 - threatening overall economy. *Washington Post*. 2020.
- [25] Team Thalamus. Explaining COVID's Impact on the 2020-2021 Virtual Recruitment Season and NRMP Match Outcomes. *Thalamus*. March 21, 2021.
- [26] —. 2020 Residency Recruitment Crisis? Data says, Not so much. *Thalamus*. December 21, 2020.
- [27] Bower, Bree. Program Coordinator, Department of Anesthesiology and Pain Medicine, Nationwide Children's Hospital. *Behind the Poster: An Interview with Bree Bower*. April 12, 2021.
- [28] Patrick M. Cocks, MD. Director, Internal Medicine Residency Program, NYU Langone Health. [interv.] Brendan Murphy. *Q&A: Pandemic's lasting impact on the future of residency selection*. January 4, 2021.