

UCSF

UC San Francisco Previously Published Works

Title

Designing successful virtual residency interviews: a survey-based needs assessment of applicants across medical specialties.

Permalink

<https://escholarship.org/uc/item/7cq5s02n>

Authors

Sequeira, Nicola

Park, Keon

OSullivan, Patricia

et al.

Publication Date

2022

DOI

10.1007/s44186-022-00004-5

Peer reviewed



Designing successful virtual residency interviews: a survey-based needs assessment of applicants across medical specialties

Nicola Sequeira¹ · Keon Min Park² · Patricia O'Sullivan³ · Christopher Fee⁴ · Audrey Foster-Barber⁵ · Margaret McNamara⁶ · Kanade Shinkai⁷ · Margo Vener⁸ · Hubert Kim¹ · Patricia Cornett⁹ · Adnan Alseidi³

Received: 18 October 2021 / Revised: 14 December 2021 / Accepted: 18 January 2022 / Published online: 9 March 2022
© The Author(s), under exclusive licence to Association for Surgical Education 2022

Abstract

Background Residency selection in the United States relied on in-person interviews for many decades. The COVID-19 pandemic and recommendations from the Coalition for Physician Accountability (COPA) required programs to implement virtual interviews for the 2020–2021 residency selection cycle. Although virtual interviews may become the norm in the future, there is scant data at the institutional level to inform how to best approach this process.

Objective To describe the perceptions of applicants to several residency programs at one institution on the importance of virtual recruitment features and assess the impact on their overall ranking decisions.

Methods Applicants who interviewed for 12 medical and surgical residency programs during the 2020–2021 cycle at the University of California San Francisco were invited to participate in an anonymous survey in March 2021, after all interviews were completed. A survey consisting of 26 questions was administered to applicants on features that are important during interviews and the impact on their ranking decisions scored on a 5-point Likert scale.

Results Of the 1422 participating applicants, 303 (21%) completed the survey. The most important feature for applicants during the interview day was getting a feel of the program (92%). Conversations with residents (91%) and faculty (79%) were also highly rated. Respondents reported morale and happiness of residents (71%) as an extremely important factor in their overall ranking decision.

Conclusion Programs should consider prioritizing features that aid in alignment with getting to know residents and faculty and provide a sense of morale over emphasis on the institutional and location features.

Keywords Graduate medical education · Resident selection · Virtual interview · Match resident application · COVID 19

✉ Adnan Alseidi
adnan.alseidi@ucsf.edu

Nicola Sequeira
nicola.sequeira@ucsf.edu

¹ Department of Orthopaedic Surgery, University of California San Francisco, San Francisco, CA, USA

² Division of Plastic Surgery, Department of Surgery, University of California San Francisco, San Francisco, CA, USA

³ Department of Surgery, University of California, San Francisco, CA, USA

⁴ Department of Emergency Medicine, University of California, San Francisco, CA, USA

⁵ Department of Neurology, University of California, San Francisco, CA, USA

⁶ Department of Pediatrics, University of California, San Francisco, CA, USA

⁷ Department of Dermatology, University of California, San Francisco, CA, USA

⁸ Department of Family Medicine, University of California, San Francisco, CA, USA

⁹ Department of Medicine, University of California, San Francisco, CA, USA

Introduction

Residency interviews are an essential component of the residency selection process. Since the establishment of the National Resident Matching Program (NRMP) in 1952, residency programs across the United States have offered in-person interviews to thousands of applicants to learn more about the applicant and assess compatibility with their program. In-person interviews allow applicants to gain an in-depth understanding of the program including the culture, strengths, and weaknesses. However, applicants and programs alike find in-person interviews burdensome. Studies report that interview days lead to significant financial cost with applicants spending an average of \$4000 on interview-related expenses and loss in productivity [1, 2]. Residency training programs also incur significant expenses with in-person interviews that could be reduced by virtual interviews. One study reported the average cost of \$5031.68 per in-person interview compared to \$2159.40 per virtual interview [1, 3]. Several pre-COVID-19 pandemic studies found web-based interviews as a potential solution to these problems [4, 5].

A number of studies offer insight into what features are valuable in the virtual interview process [4–6]. This includes the importance of pre-recorded informational videos, virtual tours, informal social events that are informative, providing applicants the opportunity to ask questions and creating a welcoming environment for the applicant. However, these studies relate to single smaller residency and fellowship programs or disciplines where applicant priorities are different. For virtual interviews to be successful, institutions need data to support choices that should be made in common across programs. Our study examined virtual interview features which applicants applying to 12 programs at one institution found valuable. These data will provide guidance to institutions and residency programs on what institutional resources and individual program efforts can improve the virtual recruitment process, as it may become a standard part of the residency application process.

Methods

The Institutional Review Board at University of California San Francisco (UCSF) approved the study. For the 2020–2021 residency match cycle, interviews were conducted using zoom or other similar platforms. Programs were aware that a shift to the online platform could result in technical issues and were prepared to handle any difficulties that would arise during the interview day. Eighteen

residency programs at UCSF were invited to participate and 12 programs volunteered. An email invitation was sent by program directors to applicants between the rank order deadline and match day. All applicants who interviewed for any of the 12 programs received the survey via an email at the completion of 2020–2021 interview cycle (March of 2021) and received weekly reminder emails for 2 weeks. Participation was voluntary and anonymous. An online questionnaires platform (Qualtrics, Provo, UT, USA) was utilized to distribute the survey. The survey consisted of 26 questions (Supplemental material 1). Using 5-point Likert scales, applicants were asked to rate the effectiveness of 14 virtual features (Fig. 1) on interview day, identified from the literature and by the authors, and also asked to rate 17 items (Fig. 2) selected based on themes taken from pre-existing literature indicating importance on their overall ranking decision. Standard statistical measures were also used to categorize applicant responses where applicable.

Results

Twenty-one percent (303/1413) of the invited applicants from 12 residency programs completed the survey (Supplemental Material 2). Respondents comprised of 52% female and 43% were of white ethnicity. Additional demographic details of study participants are available as Table 1.

Applicants (92%, median score, 5 IQR 5–5) reported that a very important interview feature is the ability to get a feel of the program followed by conversations with residents (91%, median score, 5 IQR 5–5) and conversations and interviews with faculty (79%, median score, 5 IQR 5–5) (Fig. 1). Post-interview social events (11%) and interview with department chair (9%) were reported as not important. Not all 14 features were available for every specialty. Comparisons between applicant program responses to features that were very important and not so important during interview day yielded similar viewpoints (Supplemental 3).

Applicants (55%) also identified important features that helped them understand the program was interaction with residents followed by questions answered by residents (54%) and social time with residents (48%) (Table 2). Sixty-four percent of applicants reported being extremely satisfied with resident engagement during interviews followed by programs creating a positive experience (62%) and conversations with faculty and residents (57%) (Table 3). A sample of applicants free-text responses to additional features and “best practices” they would like adopted in future virtual interviews is represented in Table 4.

Seventy-one percent (median score 5, IQR 4–5) rated resident morale and happiness as extremely important elements on their ranking decision followed by learning climate (64%,

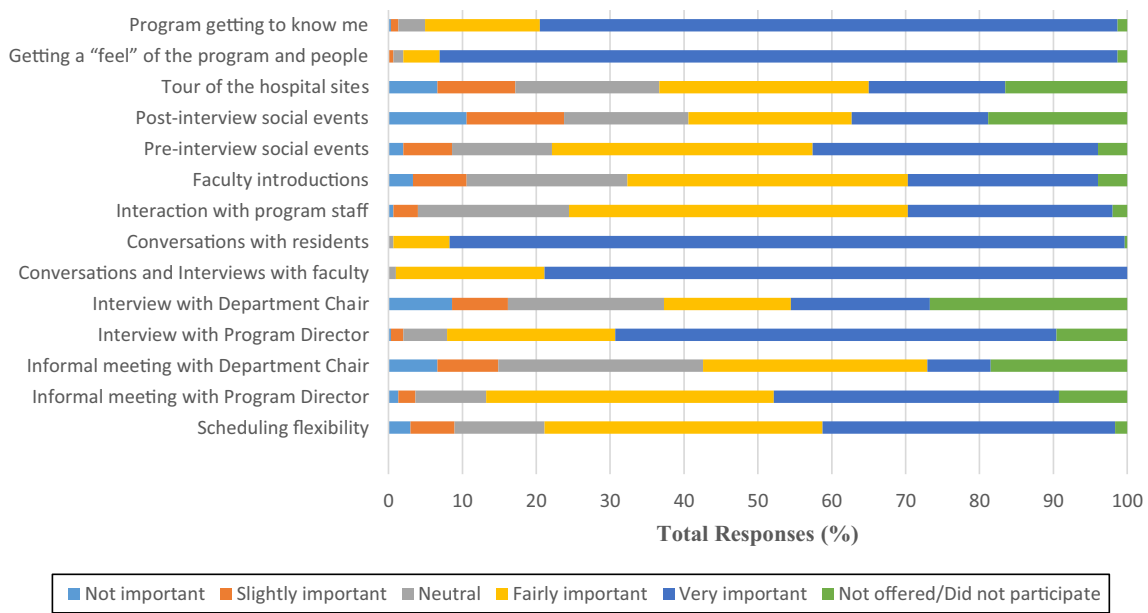


Fig. 1 Applicant survey responses—important virtual features on interview day

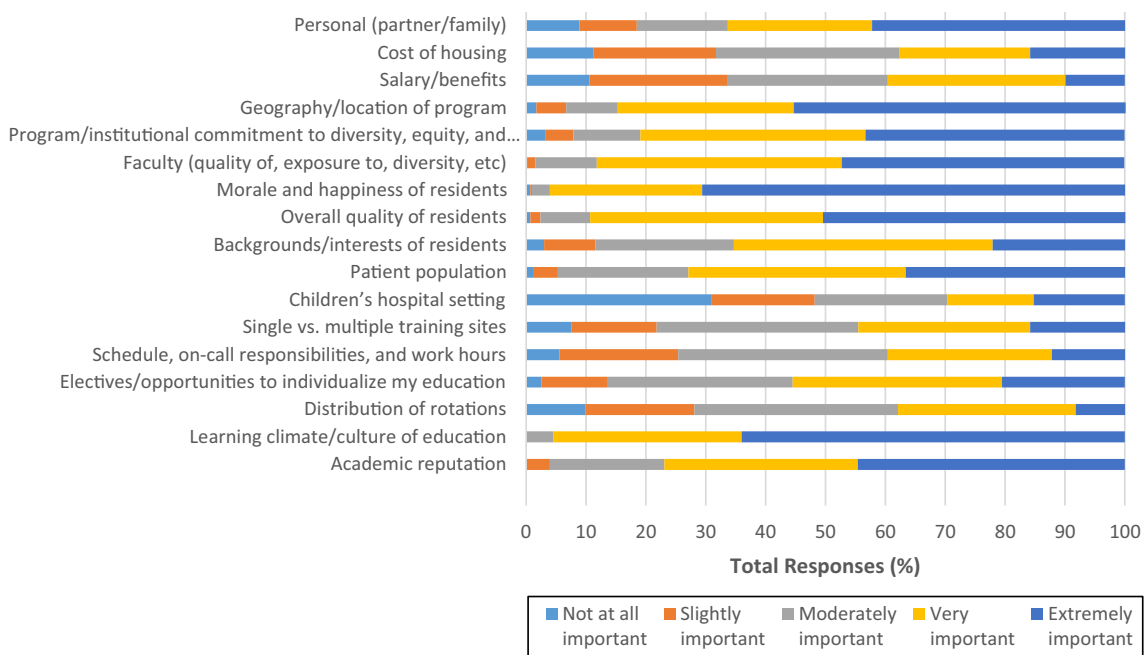


Fig. 2 Applicant survey responses—factors influencing rank list

median score 5, IQR 4–5) and overall quality of residents (51%) (Fig. 2). Presence of the Children’s hospital (31%) and cost of housing (11%) were most frequently reported as not-at-all important elements.

Out of 31 items evaluated, only five items had significantly different distributions of answers when compared between

procedural and non-procedural-based specialties but none of these were highly valued features. There were only four statements that the procedural and non-procedural specialties answered significantly differently, including importance of flexibility of rotations and patient population (Supplemental Material 4).

Table 1 Demographics of study participants

| | |
|----------------------------------|-----------|
| Sex | |
| Male | 136 (45%) |
| Female | 158 (52%) |
| Non-binary | 5 (2%) |
| Prefer not to answer | 4 (1%) |
| Ethnicity | |
| Hispanic or Latinx | 38 (13%) |
| Black or African American | 33 (11%) |
| White or Caucasian | 131 (43%) |
| American Indian or Alaska Native | 0 (0%) |
| Asian | 71 (23%) |
| Hawaiian or Pacific Islander | 1 (0.3%) |
| Prefer not to answer | 13 (4%) |
| Other | 16 (5%) |
| Location of medical school | |
| Northeast (US) | 95 (31%) |
| Southeast (US) | 50 (17%) |
| Midwest (US) | 49 (16%) |
| Mountain west (US) | 75 (25%) |
| Canada | 0 (0%) |
| Other | 34 (11%) |

Discussion

While virtual interviews for residency selection were considered for many years to alleviate the financial burden and time-away from medical school and work for both applicants and residency programs alike, in-person interviews were prioritized until the recent COVID-19 pandemic [1, 3, 7, 8]. Our study adds valuable information to initial studies highlighting preliminary strategies on the virtual residency selection process and identifying common

features that were valued by applicants across specialties. Nearly, all applicants across specialties were interested in getting a “feel of the program,” indicating the critical importance of this interview feature on interview day, whether in-person or virtual. Our findings are consistent with previous studies that showed applicants valued spending time with current residents and faculty. This shows that what applicants valued prior to the pandemic has not changed [9–11]. Thus, we recommend allocating more interactive time with current residents via pre-interview socials or informal meetings as well having informal meetings with faculty, since post-interview socials were rated as less valuable. Informal interactions can maximize applicants’ subjective sense of the program that will be of benefit during virtual recruitment sessions.

Morale and happiness of current residents and program culture were highly valued features when ranking a program. This can be attributed to the impact of the pandemic leading to increased focus on wellness and avoiding burnout during residency. This is also similar to results of studies prior to virtual recruitment in which applicants reported resident satisfaction, happiness, and “friendliness” as the most important factors in choosing their future residency program [10–12]. Thus, features that maximize applicants’ understanding of the residency program culture should be employed during virtual recruitment. Although there were a few features that procedural and non-procedural specialties answered differently, overall, the responses are similar across all the specialties showing that residency applicants’ value common features in residency.

Features which applicants did not prioritize on their virtual interview days included tours of the hospital sites and formal faculty introductions. These features may not add much to the information applicants can gather online, and they can prolong the day. Furthermore, applicants

Table 2 Applicant survey responses—features that help understand the program

| | Not at all well | Not so well | Somewhat well | Very well | Extremely well | Not offered/did not participate |
|---------------------------------|-----------------|-------------|---------------|-----------|----------------|---------------------------------|
| Interaction with faculty | 0% | 1% | 19% | 41% | 37% | 0% |
| Interaction with residents | 0% | 1% | 9% | 34% | 55% | 0% |
| Interaction with program staff | 1% | 8% | 37% | 29% | 20% | 4% |
| Tour of the program | 1% | 12% | 33% | 29% | 8% | 16% |
| Social time with faculty | 0% | 8% | 28% | 20% | 10% | 31% |
| Social time with residents | 0% | 3% | 12% | 33% | 48% | 2% |
| Questions answered by faculty | 0% | 2% | 20% | 45% | 30% | 1% |
| Questions answered by residents | 0% | 0% | 10% | 33% | 54% | 0% |
| Questions answered by staff | 0% | 8% | 32% | 30% | 13% | 14% |
| Faculty and resident videos | 0% | 4% | 27% | 37% | 24% | 5% |

Table 3 Applicant survey responses—satisfaction of virtual features offered on interview day

| Features | Extremely dissatisfied | Moderately dissatisfied | Neither satisfied nor dissatisfied | Moderately satisfied | Extremely satisfied | Not offered/ did not participate |
|---|------------------------|-------------------------|------------------------------------|----------------------|---------------------|----------------------------------|
| Engagement by residents | 0% | 0% | 4% | 30% | 64% | 0% |
| Program creating a positive experience | 0% | 3% | 4% | 29% | 62% | 0% |
| Conversations with residents and faculty | 0% | 1% | 4% | 37% | 57% | 0% |
| Engagement by faculty | 0% | 2% | 9% | 33% | 53% | 0% |
| Ease at finding information | 0% | 3% | 12% | 32% | 51% | 0% |
| Online resources | 0% | 3% | 12% | 32% | 49% | 2% |
| Structure of interviews | 2% | 6% | 13% | 32% | 47% | 0% |
| Social time with residents | 0% | 4% | 8% | 42% | 43% | 1% |
| Understanding the culture | 0% | 6% | 5% | 46% | 42% | 0% |
| Getting a feel of the program and institution | 0% | 6% | 7% | 44% | 40% | 0% |
| Determining fit of the program | 0% | 6% | 4% | 48% | 39% | 0% |
| Program getting to know me | 2% | 5% | 15% | 40% | 36% | 0% |
| Virtual tours | 2% | 5% | 15% | 33% | 28% | 15% |
| Social time with faculty | 0% | 7% | 18% | 27% | 20% | 27% |
| GME mobile applicant app | 0% | 4% | 13% | 14% | 18% | 49% |

may prefer learning about these aspects of the program firsthand by talking to their future co-residents. Applicants reported that cost of housing, salary and benefits, and distribution of rotations were not as important in their ranking decision. Factors that contribute to the educational environment have frequently outweighed these features [13–16]. Hence, this information can be distributed via pre-interview day email or posted on the program website to shorten the length of the virtual interview day.

This study has several limitations. Not all specialties were represented. Due to the small sample size from a single institution, this may not be representative of the entire residency applicant pool. The low response rate is a major limitation. Applicants took the survey within a limited time frame, between submission of rank lists and before match day to minimize response bias that post-interview contact can have on rank lists. Although the response rate is low compared to other published studies, this is the first study to the best of our knowledge that assesses and provides an understanding into features that applicants valued across multiple specialty programs and not a single residency or fellowship program. A larger response rate, however, would be needed to fully

understand the challenges of virtual interviews and the impact it has on ranking decisions. Furthermore, some of the features such as “Children’s hospital setting” may not be as applicable to some specialties and contributed to the heterogeneous answers. Lastly, this study did not address what programs need from the interview process. Knowing what both sides want and implementing these features will make the virtual interview process more successful. Future studies should address this question.

Conclusion

With the growing emphasis on the high cost of in-person interviews and the burden it places on applicants with limited financial resources, virtual interviews may become a permanent part of residency recruitment even after the COVID-19 pandemic. As we continue to refine the process, our study informs residency programs and helps better understand features applicants’ value in developing virtual interview days. We recommend focusing on these essential elements rather than spending valuable time on information applicants find less useful.

Table 4 Applicant survey responses—features applicants would like on interview day

Additional features to include

- One on one time with residents
- Balance between standardized and personal questions
- Second look in person
- Time to talk to other applicants
- Pre-taped virtual tour of facilities
- More opportunities to see what a “day in the life” of a resident is like
- More interviews with faculty members to get a feel of the faculty culture
- A platform for anonymous questions to be asked in real time and reporting
- Small break out rooms instead of a large room
- More informal faculty interactions
- More time with faculty and residents
- Personalized interviews with faculty
- Clinical case or teaching session we can observe
- Document that has answers to Frequently Asked Questions
- Consolidated information on one page on the website
- Provide interview schedule few days prior to interviews
- Social events that have fun activities

“Best practices” to adopt

- Talking with residents
- Talking with faculty
- Panel discussions
- Residents reaching out after interviews/pen-pal
- Coffee hours with faculty that have different interests
- Q&A with small number of residents and faculty
- Resident buddies
- Pre-interview meet and greet
- Resident only socials
- Pairing medical students with residents
- Pre-recorded program videos to shorten interview day
- Virtual sub-I
- Informal resident room during breaks
- Virtual tours
- Small break out groups
- Interview with Program Director
- Website with all information dedicated only to applicants

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s44186-022-00004-5>.

Declarations

Conflicts of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

1. Shah SK, Arora S, Skipper B, Kalishman S, Timm TC, Smith AY. Randomized evaluation of a web based interview process for urology resident selection. *J Urol*. 2012;187(4):1380–4.
2. Kerfoot BP, Asher KP, McCullough DL. Financial and educational costs of the residency interview process for urology applicants. *Urology*. 2008;71(6):990–4.
3. Pourmand A, Lee H, Fair M, Maloney K, Caggiula A. Feasibility and usability of tele-interview for medical residency interview. *West J Emerg Med*. 2018;19(1):80–6.
4. Joshi A, Bloom DA, Spencer A, Gaetke-Udager K, Cohan RH. Video interviewing: a review and recommendations for implementation in the era of COVID-19 and beyond. *Acad Radiol*. 2020;27(9):1316–22. <https://doi.org/10.1016/j.acra.2020.05.020>.
5. McKinley SK, Fong ZV, Udelsman B, Rickert CG. Successful virtual interviews: perspectives from recent surgical fellowship applicants and advice for both applicants and programs. *Ann Surg*. 2020;272(3):e192–6.
6. Sherry AD, Rooney MK, Bernard V, Seo A, Marqueen KE, Schrank BR. Residency interviews in radiation oncology after

- COVID-19: perspectives from recently matched applicants. *Int J Radiat Oncol Biol Phys.* 2020;108(2):452–4.
7. Seifi A, Mirahmadizadeh A, Eslami V. Perception of medical students and residents about virtual interviews for residency applications in the United States. *PLoS ONE.* 2020;15(8): e0238239. <https://doi.org/10.1371/journal.pone.0238239>.
 8. 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.
 9. Schneeweiss R, Bergman J, Clayton J. Characteristics of the residency interview process preferred by medical student applicants. *J Fam Pract.* 1982;15(4):669–72.
 10. Jacobs JC, Guralnick ML, Sandlow JI, et al. Senior medical student opinions regarding the ideal urology interview day. *J Surg Educ.* 2014;71(6):878–82. <https://doi.org/10.1016/j.jsurg.2014.05.009>.
 11. Deiorio NM, Yarris LM, Gaines SA. Emergency medicine residency applicant views on the interview day process. *Acad Emerg Med.* 2009;16(Suppl 2):S67–70. <https://doi.org/10.1111/j.1553-2712.2009.00602.x>.
 12. DeSantis M, Marco CA. Emergency medicine residency selection: factors influencing candidate decisions. *Acad Emerg Med.* 2005;12(6):559–61. <https://doi.org/10.1197/j.aem.2005.01.006>.
 13. Laskey S, Cydulka RK. Applicant considerations associated with selection of an emergency medicine residency program. *Acad Emerg Med.* 2009;16(4):355–9. <https://doi.org/10.1111/j.1553-2712.2009.00361.x>.
 14. Yarris LM, Deiorio NM, Lowe RA. Factors applicants value when selecting an emergency medicine residency. *West J Emerg Med.* 2009;10(3):159–62.
 15. Love JN, Howell JM, Hegarty CB, et al. Factors that influence medical student selection of an emergency medicine residency program: implications for training programs. *Acad Emerg Med.* 2012;19(4):455–60. <https://doi.org/10.1111/j.1553-2712.2012.01323.x>.
 16. Aagaard EM, Julian K, Dedier J, Soloman I, Tillisch J, Pérez-Stable EJ. Factors affecting medical students' selection of an internal medicine residency program. *J Natl Med Assoc.* 2005;97(9):1264–70.