



Applicant Perceptions of In-Person versus Virtual Interview Format for Surgical Retina Fellowship

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Abstract

Purpose This article compares applicants' perceptions of and experiences with virtual and in-person interviews for surgical retina fellowship.

Methods A survey was distributed via email to all applicants of three vitreoretinal surgery fellowship programs for the 2021 to 2022 and 2022 to 2023 application cycles.

Main Outcome Measures Participants were surveyed regarding cost; burden of scheduling; number of applications and interviews completed; ability to gain a true feel of the program, location, and preceptor; and number of work and surgical days missed.

Results Of 151 applicants contacted, 36 completed the survey (23.8% response rate). Of the respondents, 25.0% attended only virtual interviews, 19.4% attended mostly virtual interviews, 30.6% attended mostly in-person interviews, and 25.0% attended half virtual and half in-person interviews. Average expenditure was significantly lower for applicants with mostly and completely virtual interviews compared with applicants with mostly in-person and half virtual, half in-person ($p < 0.001$). Applicants with mostly virtual interviews reported a lower ability to gain a true perception of the program and the program location ($p = 0.003$ and $p < 0.001$, respectively). There was no difference in burden of scheduling, number of interviews completed, or number of work and surgical days missed. When applicants were asked what type of interview format they would prefer if they could repeat the cycle, those who interviewed mostly in-person largely chose in-person as their preference (72.7%), while participants who interviewed mostly or completely virtually were evenly split between in-person, virtual, and hybrid ($p = 0.136$).

Conclusion As fellowship programs and institutions decide whether they will return to in-person interviews or maintain a virtual interview format in the long term, they must weigh the lower cost of virtual interviews with the improved ability to gain a more accurate perception of the program and location allowed by in-person interviews, as well as potentially greater satisfaction with the in-person format.

Keywords

- ▶ virtual interviews
- ▶ in-person interviews
- ▶ ophthalmology
- ▶ fellowship match
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- ▶ retina fellowship

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With the onset of the coronavirus disease 2019 pandemic, in-person meetings and gatherings were largely ceased and suddenly replaced with those on various virtual platforms. Among those to transition were residency and fellowship interviews across medical specialties. The Association of University Professors in Ophthalmology (AUPO) mandated that fellowship interviews within ophthalmology be conducted virtually following the onset of the pandemic, but in 2022, the AUPO announced the option to revert to in-person interviews at the discretion of the individual fellowship programs. While this prompted the return to in-person interviews by a select number of programs, many others remained virtual.

Across various medical specialties, there has been robust debate between those favoring the return to in-person interviews and those wishing to continue the interview process virtually. While some cite decreased cost and increased flexibility in favor of virtual interviews,¹⁻⁴ there also remain concerns that applicants cannot experience intangible aspects of the program and that there is an increased opportunity for misrepresentation, whether intentional or not, on the part of the program, applicants, or both.^{2,5,6} Retina fellowship programs encompass one subset of fellowship applicants that have been surveyed. Patel et al studied the perceptions of virtual interviewees shortly after the AUPO mandate and reported similar findings, including reduced cost, ability to attend more interviews, and overall high satisfaction but limited exposure to the program culture.⁷ Another survey of a cohort of virtual retina fellowship interviewees additionally reported increased difficulty representing themselves over a virtual platform, compared with the same survey of in-person applicants from the year prior to the mandate.²

While these studies have evaluated perceptions of both virtual and in-person interviews, this study surveys participants of the 2021 to 2022 and 2022 to 2023 surgical retina fellowship application cycles, which were comprised of a combination of both virtual and in-person interviews. This adds to the existing literature a direct comparison of virtual and in-person fellowship interviewees during the same interview cycle.

This survey of applicants to retina programs was conducted to gather information and directly compare the advantages and drawbacks of both in-person and virtual formats. This may serve to guide the choice of interview format by fellowship programs going forward and by applicants if offered either choice by programs.

Methods

This study was evaluated by the Institutional Review Board at Vanderbilt University Medical Center and was granted an approval waiver. This survey study was voluntary and anonymous. This study was conducted in accordance with the tenets of the Declaration of Helsinki.

A survey (► **Supplementary Table S1**, available in the online version) was created using the REDCap platform (Vanderbilt University) and distributed to all applicants to the surgical retina fellowship programs at three peer aca-

dem institutions for the 2021 to 2022 and 2022 to 2023 application cycles.

Data collected included demographic information, interview structure (completely virtual, mostly virtual, half virtual and half in-person, completely in-person, or mostly in-person), number of applications and interviews, number of work and surgical days missed for interviews, and vacation days used for interviews. Questions regarding perception of programs included utility of informational materials provided by programs and perception of the programs, preceptors, and locations. Questions regarding perception of the interview format included length of the interviews, burden of scheduling, and anxiety level. Answers were largely provided via multiple-choice response, with some answers provided via text box for numerical values and a sliding scale for ratings (specifically how burdensome scheduling was and level of anxiety with the interview process). At the conclusion of the survey, participants were asked to choose their preferred interview format if the interview season could be repeated, with options including virtual, in-person, or hybrid.

Statistical Analysis

Applicants' responses on cost, burden of scheduling, number of applications, and number of interviews were considered as continuous outcomes in the analysis. Their responses on perception of program, preceptor, and location, number of workdays missed, and number of surgical days missed were considered as ordinal outcomes. Kruskal-Wallis and Cochran-Mantel-Haenszel tests were used to evaluate the effect of interview format on continuous and ordinal outcomes, respectively. Correlation between interview type and work days missed was evaluated via partial Spearman correlation coefficient adjusting for the number of interviews. Statistical analyses were conducted using R (version 4.2.2). Two-sided *p*-value of < 0.05 was considered statistically significant.

Results

Of 151 applicants contacted, 36 completed the survey (response rate of 23.8%). Twelve (33.3%) of the respondents interviewed in 2021, while 24 (66.6%) of the respondents interviewed in 2022. Of the respondents, 9 (25.0%) attended only virtual interviews, 7 (19.4%) attended mostly virtual interviews, 11 (30.6%) attended mostly in-person interviews, and 9 (25.0%) attended half virtual and half in-person interviews. Demographic information of applicants is displayed in ► **Table 1**.

Outcomes measured are displayed in ► **Table 2**. Compared with those who participated in completely virtual interviews, average cost was \$2,050 more for those participating in mostly virtual interviews, \$4,781 more for those participating in half virtual, half in-person interviews, and \$4,502 more for those participating in mostly in-person interviews (*p* < 0.001).

Mostly virtual interview formats resulted in the greatest number of applications completed, followed by half virtual, half in-person, then completely virtual, and the fewest applications

Table 1 Applicant demographic data

Gender	<i>N</i> = 36 (%)
Male	25 (69.4)
Female	11 (30.6)
Race	
White	18 (50)
Asian	10 (27.8)
American Indian or Alaskan Native	1 (2.8)
Other	4 (11.1)
Prefer not to answer	3 (8.3)
Ethnicity	
Hispanic, Latino, or Spanish origin	6 (16.7)
Not Hispanic, Latino, or Spanish origin	27 (75)
Prefer not to answer	3 (8.3)
Underrepresented in medicine	
Yes	9 (25)
No	26 (72.2)
Prefer not to answer	1 (2.8)

completed mostly in-person ($p = 0.012$). On average, applicants who ultimately had half or mostly virtual interviews applied to 13 to 26 more programs than those who interviewed almost exclusively in-person. The increased number of completed applications did not result in a statistically significant increase in the number of completed interviews ($p = 0.255$). Adjusting for number of interviews, there was no significant difference in number of work or surgical days missed based on the interview format ($p = 0.313$ and $p = 0.356$, respectively).

Applicants with mostly virtual interviews reported a significantly lower ability to gain a true perception of the program, program location, and program preceptor ($p = 0.003$, $p < 0.001$, $p = 0.024$, respectively). There was no difference in burden of scheduling or in anxiety level associated with the interview process between the interview formats ($p = 0.283$ and 0.958 , respectively).

When applicants were asked what type of interview format they would prefer if they could repeat the cycle (in-person, virtual, or hybrid), most applicants chose their interview type as their preference except for those interviewed completely virtual. Those who interviewed mostly in-person largely chose in-person as their preference (72.7%), while those who did half in-person and half-virtual largely chose a hybrid format (66.7%) as well as those who interviewed mostly virtually (66.7%). Participants who interviewed completely virtually chose a mixture of in-person (55.6%) and virtual (33.3%).

Discussion

As fellowship programs decide whether they will return to in-person interviews or continue virtual interview formats, various factors should be considered. This survey demonstrates that virtual interviews have advantages of lower cost

for the applicant, while in-person interviews allow for applicants to gain a more accurate perception of the program, location, and preceptors. Importantly, anxiety level, burden of scheduling, and days of work and surgery missed were no different between the groups. Cost is a critical factor that can affect the application cycle and match. This survey found that mostly or completely virtual interviews resulted in lower cost for the applicants than mostly or completely in-person interviews. This was significantly lower for completely virtual applicants.

Interestingly, this study found that those with half in-person and half virtual interviews had an increased financial burden compared with those with mostly in-person interviews. This may be attributed to the greater number of applications submitted and interviews completed, possibly prompted by increased uncertainty of interview success with virtual format or the potential opportunity to interview for more programs given that some would be virtual. However, the difference in cost between mostly in-person and half in-person/half virtual was not statistically significant and may be attributed to sample size alone. The significant reduction in cost with completely virtual interviews as compared with a combination of virtual and in-person interviews suggests that the combined format raises the cost, again possibly due to increased uncertainty and pressure to apply to more programs.

When applicants were asked their preference of format if they could repeat the interview cycle, those who interviewed mostly in-person largely preferred the in-person format, while those who interviewed half in-person and half-virtually largely preferred a hybrid format. Interestingly, the applicants who interviewed completely virtually had a mixed preference of in-person and virtual format. This may suggest that in-person experiences were overall more positive, or these applicants were biased by what they had already experienced. This could also potentially indicate greater satisfaction with any in-person interviews, as these two groups were more likely to want to repeat the same interview format while virtual participants were more evenly split and less likely to prefer repeating the virtual format.

This study is unique in that it directly compares ophthalmology fellowship applicants who experienced both in-person and virtual interviews within the same cycle. A study early after the AUPO mandate by Patel et al showed similar findings, but surveyed only virtual applicants, thus not allowing a true comparison between formats.⁷ Another study of retina fellowship applicants by Gill and colleagues compared in-person and virtual experiences; however, this comparison was across years, with in-person interviews prior to the AUPO mandate and virtual after.² This year-to-year comparison may leave room for confounding factors such as recall bias and inter-year variability in competitiveness of the match (based on variable number of applicants and positions) that may affect the level of anxiety or number of applications and interviews completed, as well as annual inflation and variation in costs between years. Importantly, interviewing participants who experienced both in-person and virtual interviews in close juxtaposition within the same application cycle allowed the opportunity to ask

Table 2 Outcomes associated with in-person and virtual interview formats

	Mostly or completely in-person (n = 11)	Half virtual, half in-person (n = 9)	Mostly virtual (n = 7)	Completely virtual (n = 9)	p-Value
Estimated cost (\$)	4,909 ± 2,200	5,188 ± 2,344	2,457 ± 1,482	407 ± 756	< 0.001
Rating of how burdensome to schedule interviews ^a	48.1 ± 26.7	54.6 ± 23.9	46.4 ± 29.3	32.1 ± 24.8	0.283
Rating of anxiety level with interview process ^a	64.7 ± 18.6	66.9 ± 22.1	65.6 ± 9.8	68.9 ± 12.7	0.958
Number of applications completed	32.4 ± 17.2	57.7 ± 17.7	58.6 ± 22.7	45.3 ± 17.3	0.009
Number of interviews completed	15.4 ± 5.1	19.6 ± 4.1	18.6 ± 5.7	18.8 ± 6.2	0.255
Ability to gain true feel for preceptor					0.024
Not really	0 (0)	0 (0)	0 (0)	3 (33)	
Neutral	1 (9.1)	0 (0)	2 (28.6)	0 (0)	
Somewhat or more	10 (90.9)	9 (100.0)	5 (71.4)	6 (66.7)	
Ability to gain true feel for program					0.003
Not really	0 (0)	0 (0)	0 (0)	2 (22.2)	
Neutral	0 (0)	0 (0)	3 (42.9)	2 (22.2)	
Somewhat or more	11 (100)	9 (100)	4 (57.1)	5 (55.6)	
Ability to gain true feel for location					< 0.001
Not really	3 (27.3)	1 (11.1)	4 (57.1)	7 (77.8)	
Neutral	0 (0)	2 (22.2)	3 (42.9)	2 (22.2)	
Somewhat or more	8 (72.7)	6 (66.7)	0 (0)	0 (0)	
Number of work days missed					0.326
1–5	1 (9.1)	1 (11.1)	4 (57.1)	3 (33.3)	
6–10	9 (81.8)	7 (77.8)	3 (42.9)	4 (44.4)	
11–15	1 (9.1)	1 (11.1)	0 (0)	2 (22.2)	
Number of surgical days missed					0.509
0	3 (27.3)	3 (33.3)	0 (0)	2 (22.2)	
1–5	7 (63.6)	6 (66.7)	7 (100)	6 (66.7)	
6–10	1 (9.1)	0 (0)	0 (0)	1 (11.1)	
Preferred choice of format					0.136
In-person	8 (72.7)	2 (22.2)	0 (0)	5 (55.6)	
Virtual	1 (9.1)	1 (11.1)	4 (66.7)	1 (11.1)	
Hybrid	2 (18.2)	6 (66.7)	2 (33.3)	3 (33.3)	

^aRatings were completed by participants through the use of a sliding scale, which translated to a 100-point scale.

which type of interview format they preferred or would select if given the choice. This direct comparison by applicants may prompt further consideration by programs.

Studies across medical and surgical fields have demonstrated similar findings with participants of virtual interview formats reporting reduced cost as well as other trends (although not statistically significant) seen in our study, including less burdensome scheduling, fewer work days missed, and overall greater convenience of the process.^{1,3,5} Limited exposure to the program culture and environment remains a recurring theme throughout many similar studies including ours.⁶ Few studies report comparable ability to gauge program culture and fit between in-person and virtual

interviews.⁸ This is likely due to the intangible nature of program culture rather than more concrete or quantifiable aspects of the program which are easier to convey, as supported by a study of pediatric anesthesiology fellowship applicants who felt that regardless of in-person or virtual format, they had a strong understanding of academic and clinical opportunities, mentorship, experience and training, and work-life balance.⁹

Limitations of this study include a small sample size, despite an acceptable survey response rate similar to other studies cited here.^{5,7,9} While participants were comprised of retina fellowship applicants to only three programs, this likely represents a majority of retina fellowship applicants

within these two interview cycles given the significant overlap of applicants between programs. However, it may not be generalizable to ophthalmology fellows within other subspecialties. The method of data collection via survey also lends itself to recall and reporting biases, which may be affected by satisfaction of the match, time elapsed since the interview cycle, and other factors.

Another limitation to consider is the increased number of respondents from the 2022 to 2023 cycle compared with the 2021 to 2022 cycle. The greater response rate from the more recent class of interviews may be due to increased willingness to participate in a survey given the more recent experience or improved ability to recall specifics of the interview cycle. However, this disparate response rate may be attributable to varying satisfaction with the interview process and complicates the interpretation of results as there may have been significant change to the interview formats, both in-person and virtual, between years in response to either formal or informal feedback on interviews, especially in the setting of dynamic changes in the interview processes throughout the country.

Interviewing applicants that participated in both virtual and in-person interviews during the same cycle allowed us to elicit direct comparisons between these formats. However, it may underestimate true differences between formats. For example, cost and number of applications may be more disparate if interviews were exclusively virtual or in-person across all programs. This supports other studies' findings that exclusively virtual interview formats have demonstrated an overall greater number of applications and greater emphasis placed on geographic aspects, including interview offers extended by programs and ultimate match distribution.¹⁰⁻¹⁴

Conclusion

As fellowship programs decide whether they will return to in-person interviews or maintain a virtual interview format, they may weigh the lower cost of virtual interviews with the better ability to gain a more accurate perception of the program, location, and preceptor allowed by in-person interviews. Lastly, there seems to be potentially greater satisfaction with the in-person format as demonstrated by the greater preference to repeat in-person interviews if given the choice.

Further areas of study include gathering more information and perspectives on potential hybrid solutions, developing methods to increase ability to gauge programs and culture virtually, finding ways to reduce cost of in-person interviews, and further exploring interview formats and associated perceptions of the match.

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Conflict of Interest

A.P.F. serves on advisory boards for Apellis, Alimera, Allergan, Eyepoint, and Genentech; and consults for Genentech and Iveric Bio. S.P. is an employee of Genentech and has received a research grant from Alcon. A.W.S. is involved in advisory boards for Regeneron, Apellis, Alimera, and Allergan; receives honoraria and serves on advisory boards for Genentech; and consults for Genentech and Iveric Bio. Q.C. serves as a consultant for the Large Urology Group Practice Association.

References

- 1 Pathak N, Schneble CA, Petit LM, Kahan JB, Arsoy D, Rubin LE. Adult reconstruction fellowship interviewee perceptions of virtual vs in-person interview formats. *Arthroplast Today* 2021; 10:154-159
- 2 Johnson GM, Tausif HN, Gill MK. Evaluation of virtual vitreoretinal surgery fellowship interview and match experience. *J Vitreoretin Dis* 2023;7(03):211-219
- 3 Geary AD, Wang TS, Lindeman B, et al. Perspectives on virtual interviews—a follow-up study of the Comprehensive Endocrine Surgery Fellowship interview process. *Surgery* 2022;171(01): 259-264
- 4 Abelson JS, Al Jabri A, Kelley SR, D'Angelo JD, D'Angelo AD, Husain S. Applicants' perspectives on virtual vs in-person colorectal residency interviews. *Dis Colon Rectum* 2022;65(10): 1162-1166
- 5 Clark SC, Kraeutler MJ, McCarty EC, Mulcahey MK. Virtual interviews for sports medicine fellowship positions save time and money but don't replace in-person meetings. *Arthrosc Sports Med Rehabil* 2022;4(02):e607-e615
- 6 Grova MM, Donohue SJ, Meyers MO, Kim HJ, Ollila DW. Direct comparison of in-person versus virtual interviews for complex general surgical oncology fellowship in the COVID-19 era. *Ann Surg Oncol* 2021;28(04):1908-1915
- 7 Patel SN, Cherkas EG, Shields CN, et al. Virtual ophthalmology fellowship interviews: perceptions of U.S. ophthalmology fellowship applicants in 2020. *J Acad Ophthalmol* 2021;13(02): e102-e107
- 8 Armstrong A, Kroener L, Cohen JG, et al. Faculty and applicant perceptions of virtual interviews on subspecialty fellowship match in obstetrics and gynecology. *Med Educ Online* 2022;27 (01):2068993
- 9 DiGiusto M, Lupa MC, Corridore M, Sivak EL, Lockman JL. The impact of the COVID-19 pandemic on the 2020 pediatric anesthesiology fellowship application cycle: a survey of applicants. *Paediatr Anaesth* 2021;31(09):968-976
- 10 van der Laan L, George R, Nesiama JA, et al. Virtual interviewing for pediatric emergency medicine fellowship—a national survey. *Pediatr Emerg Care* 2022;38(04):e1207-e1212
- 11 Inclan PM, Woiczik MR, Cummings J, Goodwin R, Hosseinzadeh P. Virtual pediatric orthopaedic fellowship interviews during the pandemic: what did the applicants and programs think? *J Pediatr Orthop* 2022;42(07):e806-e810
- 12 Rasendran C, Rahman S, Younis U, et al. The impact of virtual interviews on the geographic distribution of ophthalmology match results in the 2020-2021 cycle. *J Acad Ophthalmol* 2021; 13(02):e242-e246
- 13 Meyer AM, Hart AA, Keith JN. COVID-19 increased residency applications and how virtual interviews impacted applicants. *Cureus* 2022;14(06):e26096
- 14 Aggarwal S, Wisely CE, Syed M, Siatkowski RM, Challa P. Learning from the 2021 ophthalmology match: virtual residency matching during the COVID-19 pandemic. *J Grad Med Educ* 2022;14(06):674-679