

Multicenter Study of Optional In-Person Visits to Residency Programs After Virtual Interviews

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ABSTRACT

Background Compared to in-person recruitment, virtual interviewing reduces costs and promotes equity. However, many residency applicants believe that visiting programs helps inform their rank decisions.

Objective We assessed the feasibility of and stakeholder opinions about optional in-person visits after virtual interviewing and program rank list finalization.

Methods Six internal medicine residency programs conducted virtual recruitment in 2022-2023 and finalized their rank lists 4 weeks before the deadline. Applicants were invited for optional in-person visits after program rank list finalization. Interviewed applicants, program directors, and program administrators were given surveys that included 7-17 questions and employed "skip logic," discrete answers (eg, "yes/no/unsure" or multiple choice), and open-ended questions. Survey questions assessed stakeholders' opinions about the value, equity, and potential downsides of this recruitment process.

Results Participating programs interviewed an average of 379 applicants (range 205-534) with 39 (10.3% [39 of 379], range 7.9%-12.8% [33 of 420-51 of 397]) applicants completing in-person visits. Of 1808 interviewed applicants, 464 responded to the survey (26%); 88% (407 of 464) believe a similar optional in-person visit should be offered next year, 75% (347 of 464) found this process equitable, but only 56% (258 of 464) trusted programs not to change their rank lists. Nearly all who attended an in-person visit (96.5%, 109 of 113) found it valuable. All program directors liked the optional in-person visit and believe future applicants should be offered similar in-person visits.

Conclusions A large majority of participating applicants and program directors believe that in-person visits should be offered after program rank list finalization. The majority of respondents felt this recruitment process was equitable.

Introduction

At the onset of pandemic travel restrictions, virtual residency recruitment replaced in-person interviewing. Virtual interviewing reduces costs for applicants and programs,¹⁻¹⁰ lessens the environmental impact of travel,^{11,12} and minimizes medical school disruption, making the recruitment process more equitable for applicants.^{6,7,13} Stakeholder organizations that have recommended exclusively virtual recruitment have also recommended research to better understand it.¹⁴⁻¹⁶

Despite the benefits of virtual recruitment and applicants' general satisfaction with the process,^{1,3,5,6,9,10,17-21} applicants' ability to make an informed, high-stakes decision about which residency program is the best "fit" for them is diminished in a virtual-only format,^{1,3,5,10,18-24} and applicants prefer in-person interviews over virtual.^{1,6,24,25} In an experiment forced by the abrupt cessation of in-person interviewing for surgical fellowship in early 2020, Grova and colleagues

directly compared opinions of applicants who had completed virtual or in-person interviewing and found that applicants who completed virtual interviews were significantly less likely to report they had an "adequate understanding of the culture of the program" (64% vs 100%) and that the "interview experience was sufficient to allow them to make a ranking decision" (54% vs 92%).¹⁸

A national survey that included 7593 internal medicine (IM) interns following the first pandemic recruitment season found that only 4% of interns who had completed a virtual-only recruitment preferred exclusively virtual recruitment over options that included an in-person component.²⁶ In this cohort and in 2 others, the preferred recruitment process consisted of virtual interviewing followed by an optional in-person visit.^{19,26,27} Some applicants fear that programs may rank them lower if they choose not to visit a program when the opportunity exists, although we are unable to find evidence that this is true. Nevertheless, because of this applicant concern, the National Resident Matching Program (NRMP) is exploring a proposal for programs to voluntarily use a program rank list deadline weeks before applicants' rank list deadline²⁸ to create a

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Editor's Note: The online version of this article contains the surveys used in the study and representative narrative responses of applicants.

window of time in which applicants could choose whether to visit programs without fear of their rank position being jeopardized.

We studied a recruitment process for the 2022-2023 main residency match in which participating IM residency programs voluntarily finalized and certified their rank lists weeks before the formal rank list deadline, creating an opportunity for applicants to visit participating programs if they would find it helpful. We hypothesized that this process would be feasible for programs, that the financial costs, time expenditure, and administrative burden would be acceptable, and that applicants would find this process equitable, informative, and helpful.

Methods

We solicited volunteers from among the members of the Association of Program Directors in Medicine (APDIM) Survey Committee; a total of 6 IM residency programs agreed to participate. Participating programs included 3 from the South, 2 from the Midwest, and 1 from the Northeast regions of the United States, with 5 university-based programs and one community-based program. Participants included the program directors (PDs) and program administrators of each program, and applicants who interviewed with each program during the 2022-2023 residency recruitment cycle; preliminary program applicants were not included.

In order to participate in this study, each program agreed to finalize and not change its rank list at the beginning of February, then to host applicants who wanted to visit the program's facilities, meet program leadership in a group format (no one-on-one meetings with program faculty allowed), meet with residents (group and individually permitted), and tour the program's town. Specifically, participating programs each agreed to (1) secure the support and oversight of their designated institutional official (DIO); (2) finalize and certify their program's rank list at least 3 weeks before the NRMP deadline; (3) not change their rank list based on applicants' in-person visit decisions or behaviors after their program rank list was certified (with DIO oversight); (4) allow optional in-person visits after the program rank list finalization; and (5) not allow visiting applicants to meet in-person one-on-one with the PD, program leadership, or faculty.

Participating programs agreed to invite all interviewed applicants to an optional in-person visit except (1) applicants from their home institution, and (2) applicants who had completed a visiting rotation at their institution; these restrictions prioritized visits for applicants who had not previously had the opportunity to visit the program, given uncertain applicant interest

KEY POINTS

What Is Known

Virtual interviewing replaced in-person interviewing in residency recruitment with the onset of the pandemic. Many residency applicants would like to be able to visit programs prior to submitting their rank lists, but concerns about equity and cost have led to national guidance for programs not to offer any in-person visit opportunities.

What Is New

The authors studied a recruitment process at 6 internal medicine programs in which programs virtually interviewed applicants, then finalized their program rank lists weeks before applicants' rank list deadline, allowing applicants an optional "no stakes" opportunity to visit programs.

Bottom Line

Most surveyed applicants and program leaders appreciated this process. Applicants favored the opportunity to visit programs prior to submitting their rank lists, provided that protections are in place to reassure them that their rank position with programs won't be adversely affected by choosing not to visit.

in visiting and programs' limited capacity and time-frame to accommodate in-person visitors. Each program hosted visiting applicants only on program-designated in-person visit dates. Participating programs were asked to share the numbers of applications their program received, the number of interviewed applicants, how many applicants had signed up for and completed in-person visits, how the in-person visits were structured, and how much the program spent on the in-person visits.

Surveys were designed collaboratively and iteratively by the participating authors who have extensive survey design experience working together on the APDIM Survey Committee. The in-person visit questions were adapted from a previously published survey of in-person visits following virtual interviews in the 2021-2022 application cycle.²⁹ Survey questions aimed to assess the stakeholders' opinions about the value, equity, and potential downsides of this recruitment process. The surveys of applicants, PDs, and program administrators are available in their entirety as online supplementary data.

All applicants who were interviewed by any of the participating programs were emailed a survey using Research Electronic Data Capture (REDCap) on Match Day (March 17, 2023). Each applicant had a unique survey linked to their email address; nonrespondents were sent 3 reminder requests over the second half of March 2023, and the survey closed on April 17, 2023. Survey responses were anonymous. The surveys utilized "skip logic," guiding respondents who completed an in-person visit to answer questions about their visit experience, while applicants who had not visited a program were asked to indicate the reasons they chose not to visit. Applicants who

interviewed with more than one participating residency (defined by email address appearing on more than one program's interviewed applicants list) were sent a variant of the survey that allowed the respondent to indicate which participating programs they had visited (if any), and, if they had visited more than one program, to choose one program about which they would answer in-person visit questions.

Descriptive data are provided. Chi-square test was used to compare survey responses between the different participating sites with alpha set at $<.05$ (using R version 4.3.0). Applicants who had applied to more than one of the participating sites were grouped together into a "Multiple" category, which was treated as an independent site. For analysis of questions with more than 2 response options, the most prevalent answer was compared with the combined group of less common responses (eg, "Yes" compared to the combined group of "No" and "Unsure" responses for "Was this recruitment process equitable?").

The University of Rochester's Research Subjects Review Board approved this study as the coordinating center, with each participating institution's IRB approving their site's participation. The applicant survey invitations included information about the study, and applicants' completion of the survey was considered to represent informed consent.

Results

Participating programs interviewed an average of 379 applicants (range 205-534) and completed an average of 39 in-person visits (10.3% of interviewed applicants, range 7.9%-12.8%). Programs spent, on average, \$6,278 on in-person visit expenses (\$162 per visiting applicant, range \$50-435). While the characteristics of the in-person visits varied, programs all provided a tour of the hospital and facilities and lunch with residents. Two programs provided a guided tour of the program's city, and one program paid for a night in a hotel the evening before the visit day (TABLE 1).

Participating programs interviewed 1808 unique individuals who comprised the applicant survey group, of whom 401 (22.2%) interviewed with 2, 3, or 4 participating programs (TABLE 2, "Multiple" column). Of the 1808 interviewed applicants, 464 responded to the voluntary survey (25.7% overall response rate); the response rate varied across programs (15.2% [45 of 296] to 36.1% [96 of 266], $P<.001$), but we did not detect differences in survey responses between low response programs and high response programs (TABLE 2). A large majority (87.7%, 407 of 464) responded that applicants should be offered an in-person visit after program rank list finalization if interviews are virtual again next year; of the 20

TABLE 1
Participating Program and In-Person Visit Characteristics

Characteristics	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Average
Applicants to program	2580	2795	2370	1803	2063	3629	2540
Applicants invited to interview	605	207	299	449	538	416	419
Applicants interviewed	534	205	283	420	436	397	379
Program rank list finalization date	Feb 2	Feb 1	Feb 2	Feb 6	Feb 8	Feb 3	
Number of in-person visit days	3	3	3	1	3	2	2.5
In-person visits structure							
Dinner with residents	App/bevs	No	Yes	Apps/bevs	Yes	Yes	
Hotel night provided	No	No	Yes	No	No	No	
Teaching conference	Yes	No	Yes	Yes	Yes	Yes	
Resident tour of hospital/facilities	Yes	Yes	Yes	Yes	Yes	Yes	
Lunch	Yes	Yes	Yes	Yes	Yes	Yes	
Guided tour of city	No	No	Yes	No	Yes	No	
Day of the in-person visit	Mon/Fri ^a	Thursday	Friday	Friday	Mon/Fri ^a	Thursday	
Applicants signed up for in-person visit	54	20	34	43	51	64	44.3
Applicants attended in-person visit	50	20	34	33	45	51	38.8
Total in-person visit expenditures	\$7,563	\$1,000	\$14,796	\$4,500	\$3,537	\$6,273	\$6,278
Applicants who attended the in-person visit who matched with the program	8	1	10	4	4	10	6.2
Total matched nonpreliminary interns	33	15	28	30	34	34	29

Abbreviation: App/bevs, appetizers and beverages.

^a Program scheduled in-person visits on both Fridays and Mondays in February.

Note: Only nonpreliminary applicants are included in the study and in this table.

TABLE 2
Applicant Survey Responses

Applicant Survey Component	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Multiple ^a	Total	P value
Applicant survey responses	68	35	65	45	37	96	118	464	<.001
Applicant survey recipients (interviewed applicants)	263	191	181	296	210	266	401	1808	
Applicant survey response rate, %	25.9	18.3	35.9	15.2	17.6	36.1	29.4	25.7	
All survey respondents	n=68	n=35	n=65	n=45	n=37	n=96	n=118	n=464	
Assuming that all interviews will be virtual again next year, do you think there should be optional in-person visits for applicants next year (after the programs' rank lists are finalized)?, n (%)									
Yes	61 (89.7)	31 (88.6)	60 (92.3)	40 (88.9)	31 (83.8)	86 (89.6)	98 (83.1)	407 (87.7)	.37
No/Unsure	7 (10.3)	4 (11.4)	5 (7.7)	5 (11.1)	6 (16.2)	10 (10.4)	20 (16.9)	57 (12.3)	
Did you think the interview process that included an option for in-person visit was equitable?, n (%)									
Yes	53 (77.9)	24 (68.6)	55 (84.6)	35 (77.8)	24 (64.9)	76 (80.0)	80 (67.8)	347 (74.9)	.29
No/Unsure	15 (22.1)	11 (31.4)	10 (15.4)	10 (22.2)	13 (35.1)	19 (19.8)	38 (32.2)	116 (25.0)	
Did you trust that your decision about whether to visit a program would have no effect on where the program ranked you?, n (%)									
Yes	43 (63.2)	14 (40.0)	37 (56.9)	25 (55.6)	14 (37.8)	57 (59.4)	68 (57.6)	258 (55.6)	.26
No/Unsure	25 (36.8)	21 (60.0)	27 (41.5)	20 (44.4)	23 (62.2)	39 (40.6)	50 (42.4)	205 (44.2)	
Did having the option for an in-person visit reflect favorably on the program?, n (%)									
Yes	54 (79.4)	25 (71.4)	54 (83.1)	30 (66.7)	24 (64.9)	67 (69.8)	79 (66.9)	333 (71.8)	.08
No/Unsure	13 (19.1)	10 (28.6)	11 (16.9)	15 (33.3)	13 (35.1)	27 (28.1)	39 (33.1)	128 (27.6)	
Did the opportunity for an in-person visit affect where a program ended up on your rank list?, n (%)									
No	42 (61.8)	21 (60.0)	46 (70.8)	35 (77.8)	26 (70.3)	67 (69.8)	71 (60.2)	308 (66.4)	.62
Yes, moved program up the list	16 (23.5)	9 (25.7)	11 (16.9)	5 (11.1)	8 (21.6)	18 (18.8)	33 (28.0)	100 (21.6)	
Yes, moved program down the list	4 (5.9)	1 (2.9)	1 (1.5)	0 (0)	1 (2.7)	1 (1.0)	5 (4.2)	13 (2.8)	
Unsure	6 (8.8)	4 (11.4)	7 (10.8)	5 (11.1)	2 (5.4)	9 (9.4)	9 (7.6)	42 (9.1)	
Did the opportunity for an in-person visit affect the stressfulness of the recruitment process?, n (%)									
No	41 (60.3)	18 (51.4)	42 (64.6)	27 (60.0)	16 (43.2)	57 (59.4)	55 (46.6)	256 (55.5)	.24
Yes, the optional in-person visit increased my stress level	12 (17.6)	9 (25.9)	10 (15.4)	11 (24.4)	12 (32.4)	14 (14.6)	34 (28.8)	102 (22.0)	
Yes, the optional in-person visit reduced my stress level	12 (17.6)	4 (11.4)	7 (10.8)	3 (6.7)	4 (10.8)	18 (18.8)	17 (14.4)	65 (14.0)	
Unsure	3 (4.4)	4 (11.4)	6 (9.2)	4 (8.9)	5 (13.5)	6 (6.3)	11 (9.3)	39 (8.4)	
Did you attend an in-person visit?, n (%)									
Yes	18 (26.5)	6 (17.1)	16 (24.6)	7 (15.6)	8 (21.6)	23 (24.0)	35 (29.7)	113 (24.4)	.54
No	50 (73.5)	29 (82.9)	49 (75.4)	38 (84.4)	29 (78.4)	73 (76.0)	83 (70.3)	351 (75.6)	
Applicants who did NOT visit	n=50	n=29	n=49	n=38	n=29	n=73	n=83	n=351	
Why didn't you attend an in-person visit? (choose all that apply), n (%)									
I was unable to fit a visit into my schedule	31 (62.0)	12 (41.4)	23 (46.9)	17 (44.7)	22 (75.9)	40 (54.8)	51 (61.4)	196 (55.8)	
I felt like I got the information I needed from the virtual process	24 (48.0)	14 (48.3)	17 (34.7)	13 (34.2)	15 (51.7)	36 (49.3)	43 (51.8)	162 (46.2)	
I was unable to afford the travel costs	14 (28.0)	9 (31.0)	17 (34.7)	8 (21.1)	11 (37.9)	20 (27.4)	37 (44.6)	116 (33.0)	
I was not very interested in program(s)—they were lower priorities for my time	9 (18.0)	2 (6.9)	5 (10.2)	5 (13.2)	6 (20.7)	23 (31.5)	18 (21.7)	68 (19.4)	
I was not eligible to visit one or more of the programs (student at site or did an elective at the site)	1 (2)	5 (17.2)	11 (22.4)	5 (13.2)	0 (0)	5 (6.8)	2 (2.4)	29 (8.3)	

TABLE 2

Applicant Survey Responses (continued)

Applicant Survey Component	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Multiple ^a	Total	P value
I wanted to but there weren't enough spots to accommodate my visit	2 (4.0)	1 (3.4)	2 (4.1)	1 (2.6)	0 (0)	1 (1.4)	4 (4.8)	11 (3.1)	
Other	5 (10.0)	1 (3.4)	2 (4.1)	4 (10.5)	3 (10.3)	4 (5.5)	10 (12.0)	29 (8.3)	
Applicants who DID visit	n=18	n=6	n=16	n=7	n=8	n=23	n=35	n=113	
What were the reasons you chose to attend the in-person visit? (choose all that apply), n (%)									
See the hospital/clinic facilities	15 (83.3)	6 (100)	15 (93.8)	6 (85.7)	8 (100)	23 (100)	35 (100)	108 (95.6)	
Meet the residents in person	15 (83.3)	6 (100)	15 (93.8)	6 (85.7)	7 (87.5)	22 (95.6)	33 (94.3)	104 (92.0)	
Meet the faculty in person	13 (72.2)	6 (100)	12 (75.0)	5 (71.4)	7 (87.5)	15 (65.2)	27 (77.1)	85 (75.2)	
Learn more about living in the city	18 (100)	6 (100)	12 (75.0)	5 (71.4)	8 (100)	9 (39.1)	28 (80.0)	86 (76.1)	
Other	0 (0)	1 (16.7)	1 (6.3)	0 (0)	0 (0)	1 (4.3)	0 (0)	3 (2.7)	
I learned more about the residency program through in-person discussions with residents and faculty than I was able to remotely, n (%)									
Agree/strongly agree	18 (100)	4 (66.7)	16 (100)	3 (42.9)	7 (87.5)	20 (87.0)	30 (85.7)	98 (86.7)	
Neutral/disagree/strongly disagree	0 (0)	2 (33.3)	0 (0)	4 (57.1)	1 (12.5)	3 (13.0)	5 (14.3)	15 (13.3)	
The in-person visit helped me get a better feel for the program's city, n (%)									
Agree/strongly agree	17 (94.4)	6 (100)	15 (93.8)	3 (42.9)	8 (100)	NA ^b	34 (97.1)	83 (92.2)	
Neutral/disagree/strongly disagree	1 (5.6)	0 (0)	1 (6.3)	4 (57.1)	0 (0)	NA ^b	1 (2.9)	7 (7.8)	
The in-person visit opportunity was a valuable tool to help me make a more informed rank decision after the virtual interview, n (%)									
Agree/strongly agree	18 (100)	6 (100)	15 (93.8)	7 (100)	6 (75.0)	22 (100)	35 (100)	109 (96.5)	
Neutral/disagree/strongly disagree	0 (0)	0 (0)	1 (6.3)	0 (0)	2 (25.0)	0 (0)	0 (0)	3 (2.7)	
The in-person visit influenced my rank list, n (%)									
Agree/strongly agree	16 (88.9)	6 (100)	10 (62.5)	4 (57.1)	5 (62.5)	17 (85.0)	28 (80.0)	86 (76.8)	
Neutral/disagree/strongly disagree	2 (11.1)	0 (0)	6 (37.5)	3 (42.9)	3 (37.5)	5 (22.7)	7 (20.0)	26 (23.2)	
If you had to travel to the program's city, how did you get there?, n (%)									
Drove	9 (50)	5 (83.3)	14 (87.5)	5 (71.4)	6 (75.0)	5 (22.7)	24 (68.6)	68 (60.2)	
Flight	9 (50)	1 (16.7)	0	1 (14.3)	2 (25.0)	10 (45.4)	10 (28.6)	33 (29.2)	
Already in program town	0 (0)	0 (0)	2 (12.5)	1 (14.3)	0 (0)	7 (31.8)	1 (2.9)	11 (9.7)	
How far did you travel to attend the in-person visit?, n (%)									
0-50 miles	1 (5.6)	0 (0)	4 (25.0)	1 (14.3)	0 (0)	7 (31.8)	1 (2.9)	14 (12.4)	
50-100 miles	0 (0)	0 (0)	5 (31.3)	3 (42.9)	0 (0)	0 (0)	9 (25.7)	17 (15.0)	
100-200 miles	2 (11.1)	2 (33.3)	0 (0)	0 (0)	1 (12.5)	0 (0)	6 (17.1)	11 (9.7)	
>200 miles	15 (83.3)	4 (66.7)	7 (43.8)	3 (42.9)	7 (87.5)	15 (68.2)	19 (54.3)	70 (61.9)	
Which of the following were the hardest for you overcome to attend the in-person visit? (choose up to 2), n (%)									
Cost of traveling to program city	13 (72.2)	2 (33.3)	4 (25.0)	2 (28.6)	4 (50.0)	12 (54.5)	14 (40.0)	51 (45.1)	
Cost of hotel/lodging	10 (55.6)	4 (66.7)	1 (6.3)	4 (57.1)	7 (87.5)	5 (22.7)	19 (54.3)	50 (44.2)	
Cost of food	1 (5.6)	0 (0)	0 (0)	0 (0)	1 (12.5)	1 (4.5)	3 (8.6)	6 (5.3)	
Sparing the time from medical school activities	1 (5.6)	1 (16.7)	8 (50)	1 (14.3)	2 (25.0)	7 (31.8)	14 (40.0)	34 (30.1)	
Other	1 (5.6)	1 (16.7)	1 (6.3)	2 (28.6)	0 (0)	2 (9.0)	2 (5.7)	9 (8.0)	
If you're comfortable sharing, how much would you estimate you spent on the in-person visit (including travel costs), n (%)									
N (%)	15 (83.3)	5 (83.3)	13 (81.3)	4 (57.1)	7 (87.5)	16 (69.6)	28 (80)	88 (77.9)	
Average (\$)	450	380	82	175	470	242	317	302	
Median (\$)	500	200	50	125	450	200	275	200	

^a "Multiple" refers to applicants whose email address appeared on more than 1 of the participating programs' interviewed applicants email list.^b An error in the survey instrument listed the wrong city for this program for this question, so the data are not reported.

“No” respondents, 10 answered the “Why not?” follow up prompt, the majority of whom expressed concern that an applicant’s decision to visit or not visit might affect their rank position. Three quarters of respondents (347 of 464) felt that having the optional in-person visit after program rank list finalization was equitable and reflected favorably on the program. Only 258 of 464 respondents (55.6%) indicated that they trusted programs not to change their rank list based on applicant decisions to visit or not visit, despite repeated assurances from participating PDs and administrators, and reported adherence to their promise to applicants. General narrative comments about the option for in-person visits were positive from applicants, with applicants’ main concern being that programs could have incorporated information about whether an applicant chose to visit in their rank list using the studied process (ie, without a formal NRMP program rank list deadline before the visit; online supplementary data).

Three hundred and fifty-one of 464 respondents (75.6%) did not attend an in-person visit; the most common reasons for not visiting were: unable to fit a visit into their schedule (55.8%, 196 of 351), they

had gotten the information they needed from the virtual process (46.2%, 162 of 351), and unable to afford the travel costs (33.0%, 116 of 351). One hundred and thirteen of 464 (24.4%) respondents attended at least one in-person visit. Of these, nearly all (96.5%, 109 of 113) felt that the in-person visit was a valuable tool to help them make a more informed decision about their rank list after the virtual interview. Most respondents (60.7%, 68 of 113) drove for the in-person visit, most traveled more than 200 miles, and the average cost to applicants for an in-person visit was \$302 (TABLE 2). Most applicants who visited felt that they learned more about the program and the city from visiting, and 76.8% (86 of 113) reported that the in-person visit influenced their rank list.

All 12 participating PDs and program administrators responded that they liked having the in-person visits, and 9 (75%) found the process equitable for applicants (the other 3 answered “unsure”; TABLE 3). Most PDs characterized the time and stress burdens of the in-person visits as a “small amount,” and that it was only “slightly difficult” to finalize their rank lists early enough to accommodate the in-person

TABLE 3

Program Director and Program Administrator Opinions About the Optional In-Person Visits

Questions	Program Directors (n=6)	Program Administrators (n=6)
Do you think the recruitment process this year (allowing applicants to visit after program rank lists complete) was equitable for applicants?	5 “Yes”	4 “Yes”
	1 “Unsure”	2 “Unsure”
Did you like having the optional in-person visit for applicants?	6 “Yes”	6 “Yes”
How much time did the addition of an optional in-person visit add to your personal efforts related to resident recruitment?	5 “A small amount”	7.8 hours for PA
	1 “Moderate amount”	21 hours for staff total
How much did having the optional in-person visit add to the stressfulness of the recruitment process for you?	4 “A small amount”	3 “A small amount”
		2 “Moderate amount”
	2 “Not at all”	1 “A lot”
Do you think applicants should have an opportunity to visit programs in-person next year even if all interviewing remains virtual?	6 “Yes”	5 “Yes”
		1 “Unsure”
How much strain did the in-person visits place on your residents?	6 “A small amount”	
How difficult was it for you to complete your rank list by the beginning of February 2023?	4 “Slightly difficult”	
	1 “Somewhat difficult”	
	1 “Not at all difficult”	
How do you think the optional in-person visit affected the success of your recruitment efforts overall?	3 “Slightly improved”	
	2 “No effect”	
	1 “Substantially improved”	
Did you incorporate any information about whether an applicant signed up for an in-person visit in their rank list placement?	6 “No”	

Abbreviation: PA, program administrator

TABLE 4

Program Director Narrative Responses

Program Director	If you could conduct your recruitment however you wanted next year, what would you do differently?
1	Would continue with all virtual interviews with optional in-person visit after locking rank list. Changes: ▪ Setting and sharing dates for optional visits with interview invitation so applicants could plan much further ahead for this and potentially make less expensive travel arrangements. ▪ Earlier end date for interviews to allow more time for rank list development and review before locking it down. ▪ Will still plan to remain blinded to applicant visit plans until our rank list is completed.
2	I would perform all interviews virtually, certify our rank list, then have optional in-person second look visits just like we did this year.
3	Offer optional in-person visits separate from interview days to all invited applicants. These will be scattered throughout the interview season in all likelihood for logistical reasons.
4	It is hard to know if the in-person was beneficial as a PD! I do think I could make a “better” in-person visit next year. It was nice to meet people and if not for the massive effort and cost involved, it did make me miss in-person interviews a little more than I’d thought. Realizing how fast I had to make the rank list this way, I might prepare more along the way for making the rank list especially for niches of recruiting, such as PSTP.
5	Not sure I would do much differently. The 2nd look was a significant amount of work for the chief residents who coordinated much of the 2nd look details. We intentionally did not have recruitment directors involved at all and as the PD I tried to limit my involvement as well. We limited each of 2 sessions to 30 applicants per session. I think this was the right number of applicants for our program.
6	We would invite fewer people to interview. We would have our in-person second look day NOT on the day following a snow storm. We would add a tour of the city to the in-person second look day.

Abbreviation: PD, program director; PSTP, Physician Scientist Training Program.

Note: All 6 participating PD replies are included.

visits. All PDs think there should be an optional in-person visit in future recruitment cycles, though some PDs would modify their in-person visit approach (TABLE 4). PD narrative feedback included that a few candidates rated by virtual interviews to have poor communication skills appeared to have much better communication skills during in-person visits. Program administrators estimated that the in-person visits added 7.8 hours to their workload and 21 hours of total staff time. Half of program administrators reported the stress added as a “small amount,” while 2 characterized it as a “moderate amount” added, and 1 “a lot.” Five of 6 program administrators think there should be an in-person visit option next year, while 1 was unsure. There were no incidents of applicant unprofessional behavior observed by PDs or program administrators during in-person visits.

Discussion

This survey study of IM residency programs post-virtual interview optional in-person visits after programs locked their rank lists, found high satisfaction reported by applicants, PDs, and program administrators. Most PDs and program administrators reported relatively low costs and increased workload. Applicants perceived that the process was equitable but also expressed concerns regarding whether programs

would honor the commitment to locking their rank lists. Nearly all applicants (96.5%) who visited a program found the visit valuable to them. A third of applicants reported that they did not choose to visit due to costs. Most survey respondents expressed interest in continuing the option of post-virtual interview, in-person visits.

Our findings are similar to those of a previous study reporting that a cohort of radiology residency applicants in the 2021-2022 season found visiting a program after virtually interviewing highly valuable.²⁹ Notably, our study design differed by including multiple IM residency programs, also surveying interviewed applicants who chose not to visit, and requiring participating programs to finalize their rank lists prior to conducting in-person visits.

Although this study did not assess the quality of residency virtual interviews, the finding that PDs observed strong communication skills in a few applicants whose communication skills were considered poor during virtual interviews requires further study. For example, are virtual interviews less effective in assessing communication skills among applicants than in-person interviews, or might similar observations have been seen with in-person interviews compared to informal in-person activities?

If future recruitment seasons allow applicants the opportunity for in-person visits after virtual interviews, there could be additional disruption to students’

rotations and school commitments. Scheduling in-person visit days on a Friday or Monday may reduce the travel time disruption to students' regular schedules. If programs allowed in-person visits on the same days (eg, the last 2 or 3 Fridays in February), there would be a natural limit to how many in-person visits an applicant could attend, which might create a reasonable compromise balancing the competing priorities. Some concern has been raised among PDs that in-person visits might uncover unprofessional behavior in an applicant that would prompt a PD to want to change their rank list, though this did not occur in our study. If the NRMP adopts a staggered rank list deadline, a PD would not be able to change their rank list despite the identification of concerns; if such an applicant did match with the program, the PD would have the benefit of foresight into the potential risk for professionalism concerns that they otherwise would not have had.

This study is limited by the low applicant response rate to the survey and the small number of IM programs in the study; the respondents and included programs may not represent the total populations of interest. Also, the study included no residency programs in the Western United States, where travel may have greater cost and time implications for students. The survey was developed by individuals with survey expertise, but was not tested in the population of interest; thus, respondents may not have interpreted questions as intended.

With the students' concerns in this study regarding programs honoring the agreement to lock their rank lists before in-person visits, a next step would be to evaluate this option with NRMP support, to set an earlier deadline to lock participating programs' rank lists. In addition, more work examining the effects of this approach on final year medical student learning, participation by less well-resourced students, and greenhouse gas emissions is needed.

Conclusions

This multicenter study of post-virtual interview, optional in-person visits to IM residency programs that agreed to lock their final rank lists prior to offering visits, found high acceptability from applicants, PDs, and program administrators. Costs and workload were considered reasonable, and applicants perceived that the process was equitable. However, many applicants were concerned that programs would not honor their commitment to lock the final rank list.

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