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Original Article

A Leadership Perspective on the Plastic and Reconstructive Surgery Residency Application Cycle During the COVID-19 Pandemic

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\textbf{A B S T R A C T}

\textbf{Introduction:} The purpose of this study was to identify leadership perspective on the impact of COVID-19 Plastic and Reconstructive Surgery (PRS) residency application cycle in 2020 and its future implications.

\textbf{Methods:} A survey was sent to residency program leaders (RPL), consisting of program directors and division chiefs/chairs. The survey was sent weekly for 4 weeks and remained open for 28 days.

\textbf{Results:} A total of 156 PRS RPL were emailed. Response rate was 24% (38/156). A total of 68% were division chiefs/chairs, and 42% were program directors. Ten percent were both division chiefs/chairs and program directors. Among them, 78% were male. Eighty-seven percent of RPLs reported changes in the number of away rotations, of which 91% reported less away rotations. Only 27% of programs provided virtual away rotations (VAR), and 88% of RPLs were not comfortable writing letters of recommendation after VARs. Hundred percent of cases reported that VARs influenced whether an applicant received an interview. A total of 24 RPLs (63%) reported no changes in how they viewed applications due to the pandemic. However, 5 (13%) reported USMLE scores were more important, 4 (11%) reported research was more important, and 4 (11%) reported LORs were more important. Sixty-six

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percent did not feel they relied heavily on home institution candidates. Seventy-six percent found virtual interviews to be effective in evaluating applicants, and 71% reported they would add virtual interviews in future interviews.

Conclusions: During the 2020-2021 PRS residency application cycle, fewer away rotations were offered, and formerly in-person activities were moved to virtual platforms. Virtual activities caused difficulty assessing candidates for many residency programs.

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Introduction

The COVID-19 pandemic led to a worldwide quarantine, limiting travel, and in-person interactions. Prior to the pandemic, the National Residency Matching Program (NRMP) application process relied heavily on in-person activities (away rotations and interviews) to assess candidates prior to the match. A recent study discussed the disadvantages of virtual activities due to the candidates’ inability to directly interact with house staff, become familiar with the campus, and immerse themselves in the culture of the university.1 Additionally, several studies also noted that the numbers of away rotations offered prior to match day had decreased due to the American Council of Academic Plastic Surgeons (ACAPS) recommendation that away/visiting rotations be cancelled for the 2020 application cycle.2,3 The loss of away rotations and in-person interviews invites the question of how these factors impacted the application process. The purpose of our study was to obtain a leadership perspective, from residency program leaders (RPL), consisting of program directors and division chiefs, on the changes to the Plastic and Reconstructive Surgery (PRS) residency application cycle in 2020 caused by the COVID-19 pandemic.

Methods

Study Design

A survey questionnaire was designed using the Research Electronic Data Capture software (REDCap ®) to gather data pertinent to the 2020 PRS residency application cycle during the COVID-19 pandemic. The multiple-choice survey included a varying number of questions based on participant responses, and respondents were de-identified. Questions were grouped by the following categories: demographics, visiting/away rotations, application selection, and interview processes during the 2020 match cycle.

Participants

All PRS training programs accredited by the Accreditation Council of Graduate Medical Education (ACGME) were identified. The ACGME.org website was accessed, and specific programs were identified by specialty.4 RPL, consisting of program directors and the division chiefs or chairmen depending on the status of the program, were identified using each program’s publicly available website. The institutional email addresses of RPLs were identified by searching publicly available information on the internet.

Data collection

Using REDCap ® software, a secure survey was sent via email to the 156 RPLs of each ACGME accredited training program. The secure emails were initially sent on August 8, 2021 with a direct
link to the survey as well as a statement describing the purpose of the study and that participation was voluntary. Additional emails were sent weekly as a reminder to all remaining participants for 4 weeks. All completed surveys were de-identified, recorded, and included for data analysis.

Data Analysis

All data analysis was conducted with REDCap software. Data were grouped by the following categories: demographics, visiting/away rotations, applicant selection, and interview processes. Demographic data and responses to survey questions were recorded as frequencies and percentages.

Results

Demographics

A total of 156 RPLs were identified and emailed. A number of 38 participants completed our survey, resulting in a 24% response rate. There were 30 male (79%) and 8 female (21%) respondents. Most respondents were over the age of 40 (97%), with 16 (42%) aged 41-50, 10 (26%) aged 51-60, and 11 (29%) over the age of 60. Only 1 (3%) respondent was under the age of 40. Over 80% of respondents had been in practice for more than 11 years. A number of 22 (58%) were division chiefs or chairmen, 12 (32%) were program directors, and 4 (10%) held both positions. A total of 26 (68%) RPLs had only an integrated training program, 3 (8%) had only an independent program, and 9 (24%) had both program types. The 38 responding RPLs were from institutions in 23 different states.

Visiting/Away Rotations

The majority of respondents reported changes in the number of away rotations during the 2020 residency application cycle compared to previous years, with 91% reporting a decrease in away rotations offered. When asked about participating in virtual away rotations (VAR), only 8 (27%) RPLs reported providing them. Of those that reported having VARs, 37.5% reported a VAR duration of 4 weeks, 50% reported a duration of 2 weeks, and 25% reported a duration of 1 week. These rotations included journal clubs (100%), online lectures (100%), networking events (75%), research meetings (63%), virtual rounds (50%), morning reports (37.5%), and live stream surgeries (13%). The majority of RPLs (88%) reported that they were not comfortable writing a well-supporting letter of recommendation after VARs, most frequently due to not enough interaction with the candidate (43%) and not able to assess their hands-on skills (43%). However, 100% of RPLs reported that VARs influenced whether applicants received interviews.

Applicant Selection

RPLs saw more residency applications for the 2020 cycle than previous years, and 87% reported increasing their programs’ social media presence for recruiting purposes. Sixty-three percent (24) reported no change in evaluating the different aspects of residency applications compared to prior years. Of the RPLs reporting changes in the way they assessed applications, 4 (11%) reported placing more weight on research, 4 (11%) reported placing more weight on letters of recommendation, and 3 (8%) reported placing more weight on USMLE Step 1 (Fig. 1). Notably, 34% of RPLs reported relying more heavily on home-institution candidates, 13% reported relying less on visiting/away rotations, and 5% reported relying less on interviews in their assessment of candidates.

Interview Processes

All 38 responding RPLs reported that their programs participated in virtual interviews. Zoom was the most frequently used platform with 77% of programs using this software (Fig. 2). Many styles of virtual interviews were used by programs including virtual hang-out rooms (76%), virtual one-on-one interviews (71%), and virtual group interviews (47%) (Fig. 3). A total of 5 (13%) RPLs reported having
Fig. 1. Application factors weighted more heavily during the 2020 PRS Match.

Fig. 2. Video conferencing platforms used during the 2020 PRS virtual interview cycle.

Fig. 3. Frequency of virtual interview types conducted during the 2020 PRS virtual interview cycle.
technical issues during the interviews, resulting in a total of 10 interviews having to be rescheduled. Overall, most respondents (76%) found virtual interviews effective for evaluating applicants. The RPLs that did not find virtual interviews effective reported the following reasons: inability to assess interpersonal communication skills with colleagues (89%), inability to assess nonverbal communication skills (78%), and inability to establish rapport with the applicant (67%). Seventy-one percent of RPLs reported that they would add virtual interviews to future interview cycles for the following reasons: cost effectiveness (85%), time efficiency (67%), and convenience (67%).

Discussion

The COVID-19 pandemic affected the 2020 NRMP residency match for PRS in several ways, most notably a reduction in the number of away rotations offered and a lack of in-person interviews. Historically, away rotations have been thought to play a significant role in the match process. Aiyer et al. showed that applicants who were able to complete at least two away rotations were more likely to successfully match into a competitive specialty. Their study looked at orthopedic surgery applicants and found that more than 50% of matched applicants ended up matching at either their home program or one of the programs at which they completed an away rotation. Unfortunately, most RPL (91%) in our study reported a reduction in away rotations offered. Our findings are consistent with what other competitive specialties experienced as well. For example, Quesada et al. found a decrease in the number of away rotations offered by otolaryngology residency programs.

Obtaining quality letters of recommendation was also an issue, as Raj et al. discussed the increased difficulty in getting “critical” letters of recommendation from well-respected plastic surgeons during the pandemic. Our study results echo this statement, with 88% of RPLs reporting not feeling comfortable in writing letters of recommendation for students after VARs, attributed to a lack of interaction with students to assess their interpersonal skills and hands-on abilities. Perhaps as a compensatory measure, our study found 87% of RPLs reported increasing their programs’ social media presence to increase recruitment during the 2020 cycle. Bekeny et al. discussed using social media as a screening tool for candidates, while Boyd et al. discussed using personality tests to better understand candidates and determine whether they are a good fit for a particular program.

The transition from in-person to virtual interviews was the other major change caused by the COVID-19 pandemic. All programs who responded to our survey participated in virtual interviews, as recommended by the AAMC. Despite initial concerns over virtual interviews, 71% of RPLs reported that they would use virtual interviews again in the future due to convenience, time efficiency, and cost reduction (especially, for applicants). Sarac et al. found that roughly 90% of applicants reported spending less than $500 on interview-related costs, compared to an average $6500 spent during the 2018 and 2019 application cycles. The authors also found that 68% of RPLs were satisfied with virtual interviews. However, despite a 68% satisfaction rate, 76% of program directors still prefer in-person interviews.

Applicant preferences regarding virtual interviews have been assessed in other studies. Sarac et al. found that 76% of applicants preferred in-person interviews. Further, Bamba et al. found that applicants who attended an in-person group interview were more satisfied with the interview process when compared to the virtual group. Hemal et al. found that 80% of applicants preferred having a virtual preinterview social to meet residents, and 60% applicants wanted to meet the entire faculty virtually on interview day. The authors also found that applicants preferred shorter interview days with back-to-back interviews. This is consistent with the suggestions of Patel et al. who proposed that programs limit interview activities to one day, claiming that multiple days of events for applicants lead to significant interview fatigue. Additionally, Patel et al. found that applicants preferred smaller group sessions during preinterview socials as it encouraged discussion and allowed for better interaction between applicants and residents.

Recently, several groups have published papers in attempt to maximize students’ success in matching during the virtual interview process. Phillips et al. provided interview etiquette advice along with virtual interview do’s and don’ts for students to follow when interviewing for PRS training programs, with a focus on being prepared, humble, and engaged. They also reaffirm the importance of testing out technology prior to interviews and having backup plans in the event of technological fail-
Additionally, Rodoni et al. provided suggestions to help mentors and mentees successfully navigate the match during the COVID-19 pandemic, including identifying needs, managing expectations, and utilizing team mentorship. Serebrakian et al. conducted a study looking at the effect of including a webinar providing information about changes to the application process and interviews, finding that applicants felt better about their chances of matching after attending. Interestingly, Sarac et al. and Dean et al. found that even differences in camera quality and room lighting could affect match probability. Sarac et al. further discussed that candidates’ medical schools providing standardized equipment and rooms for students to use during interviews could be advantageous. Overall, it appears that candidates should discuss how to optimize their interview environment and audio-visual quality with their home institutions to improve their chances of matching.

Changes at the policy level have been proposed to improve the interview process in this new virtual setting. Hammoud et al. discussed implementing methods such as encouraging holistic review of applicants, limiting the number of applications, and allowing programs to temporarily opt out of the NRMP “All In” policy to contract with applicants from their own institution to alleviate match-related stress. Asaad et al. suggested that policy changes should occur at the AAMC level, including limiting the number of interviews an applicant can attend to create more equal opportunity amongst applicants.

Our study has several limitations to mention. The primary limitation of our study is the low response rate of only 38 out of 156 responses. In addition, the email addresses of all RPLs were gathered from publicly available email directories and program websites from over 80 institutions. We are unaware of the maintenance schedules of these directories/websites, and believe it is possible that invalid email addresses from unmaintained sources may account for a small portion of the unanswered surveys. We also believe it is possible that institutional restrictions against non-preapproved email senders may have restricted the release of our survey to some recipients’ inboxes. It is also possible that some of our data is skewed by reporting as bias, as our data consisted of subjective reports rather than objective data points. Lastly, our data on personal experience with virtual interviews came from faculty only. It is important for future studies to further assess applicant experiences for adequate comparison.

Overall, the 2020 residency application cycle experienced many changes due to the COVID-19 pandemic. Less away rotations were offered, and in-person activities were moved to virtual platforms. Despite this, our study data indicate that most leaders within PRS residency programs did not change how they assessed applications, and only a minority relied more heavily on home-institution candidates. We also found that some of the changes made due to COVID-19 may be here to stay, with many programs endorsing that they would continue to use components of a virtual interview process in future cycles for reasons outside of social distancing. As COVID-19 remains a major public health issue worldwide, limitations on away rotations and increased virtual aspects of the residency application process will likely to continue for the foreseeable future. Though these changes may not impact how programs form rank lists to the degree originally speculated, it is important for both candidates and programs to understand how best to navigate the NRMP match under these new circumstances.

Declaration of Competing Interest

None.

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None Declared.

Ethical Approval

Not Required.
Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi: 10.1016/j.jpra.2022.10.001.

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