

Webinar during COVID-19 Improves Knowledge of Changes to the Plastic Surgery Residency Application Process

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Background: The COVID-19 pandemic has significantly impacted residency application process for all specialties, including plastic surgery residency. Almost all plastic surgery residency programs have suspended visiting sub-internship rotations. This study quantifies the impact of a webinar through an analysis of poll questions and a post-webinar survey sent to all registered participants.

Methods: A dedicated webinar was organized and held by the Harvard Plastic Surgery Residency Training Program. All attendees were asked several poll questions during the webinar. The 192 participants were also sent a post-webinar survey.

Results: The response rate was 68.2% (n = 131). Respondents were more confident about matching into a plastic surgery residency program at the end of the webinar compared with before the webinar ($P < 0.001$). Respondents who did not have a plastic surgery residency program at their home institution were less confident at the start of the webinar ($P = 0.009$). In addition, respondents who had not taken time off for research or for other endeavors during or after medical school were less confident about their chances to match at the start of the webinar ($P = 0.034$).

Conclusions: An online webinar program increased confidence levels of medical students interested in applying for residency positions in plastic surgery. Residency programs should consider webinars as a method to inform and assist medical students during the upcoming application season. (*Plast Reconstr Surg Glob Open* 2020;8:e3247; doi: [10.1097/GOX.0000000000003247](https://doi.org/10.1097/GOX.0000000000003247); Published online 15 October 2020.)

INTRODUCTION

The COVID-19 pandemic has created unique challenges for this year's plastic surgery residency applicants. Medical students who would typically spend 1–3 months completing visiting sub-internships at institutions other than their home medical school are unable to pursue these opportunities, thereby foregoing a traditionally

important part of the recruitment process in our specialty. For residency programs, the sub-internship experience and in-person interview days normally provide a way to get to know candidates on a personal level.^{1,2} With the ongoing pause to both visiting sub-internships and in-person interviews, residency programs and medical students applying for plastic surgery residency positions (as well as all other specialties) are now forced to adapt and optimize the online resources available to maximize the recruitment process.

Given the competitiveness of the plastic surgery match, the sub-internship rotation experience provides a means for mutual assessment on behalf of the applicant as well as the residency program. Students can spend up to 4 weeks or more on service at an outside institution. These away rotations allow students to get to know a program

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Received for publication September 10, 2020; accepted September 21, 2020.

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DOI: [10.1097/GOX.0000000000003247](https://doi.org/10.1097/GOX.0000000000003247)

Disclosure: *The authors have no financial or personal relationships to disclose in relation to the content of this article. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.*

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.

firsthand versus relying solely on the interview process or word of mouth. Additionally, residency program directors and staff members can interact directly with the sub-interns for a much longer period than possible during an interview day.³ Finally, residents within programs can assess a student's potential and gauge whether there would be a mutually beneficial fit.

Because of the COVID-19 pandemic, many medical schools and residency programs across the United States have announced the temporary cessation of visiting sub-internship rotations during the summer and fall of 2020. As such, medical students will be left without these important experiences during the residency match process. Anecdotally, we noticed an increase in queries on online forums and email correspondences from medical students since the start of the pandemic, with a large number of questions focused on how to best adapt to the current unprecedented situation.

In May 2020, our residency program organized and held a dedicated webinar for medical students interested in applying for plastic surgery residency positions during the COVID-19 pandemic. We performed a survey study of webinar participants, aiming to determine how a webinar may affect student perceptions about the residency application process during COVID-19 and what specific groups of students may benefit most. We hypothesized that a webinar would provide information and increase the confidence of medical students in their ability to match into plastic surgery during the COVID-19 pandemic, especially those students without a plastic surgery residency program affiliated with their medical school.

METHODS

A webinar hosted by the Harvard Plastic Surgery Residency Training Program took place on May 17, 2020. The webinar was held on the Zoom software platform (Zoom Video Communications, Inc., San Jose, Calif.). The webinar took place 6 days after the Coalition for Physician Accountability Work Group published the Final Report and Recommendations for Medical Institutions of LCME-Accredited, U.S. Osteopathic, and Non-U.S. Medical School Applicants, which recommended virtual interviews, delayed opening of ERAS, and discouraging visiting away rotations during the upcoming 2020–21 cycle. (See **pdf, Supplemental Digital Content 1**, which displays the final report and recommendations for medical education institutions of LCME-Accredited, U.S. Osteopathic, and Non-U.S. Medical School Applicants by the Coalition for Physician Accountability's Work Group on Medical Students in the Class of 2021 Moving Across Institutions for Post Graduate Training. <http://links.lww.com/PRSGO/B507>.) In total, 4 faculty members and 5 residents from the host program participated and co-hosted the webinar entitled "Plastic Surgery Match During COVID-19."

Any medical student or current resident physician interested in plastic surgery was eligible to sign up. Foreign medical graduates were eligible to participate. Registration for the webinar was provided free of cost. The webinar was promoted through the official host residency

program social media platforms. All faculty and resident webinar hosts were also encouraged to share posts announcing the webinar event. Interested attendees were instructed to send an email from their medical school email account indicating their interest to join the webinar. After an email was received by our program, a registration weblink was sent to each interested student that opened a Zoom webinar registration form. Subsequently, a weblink for the meeting was sent to those who completed the registration process.

Demographic information was collected from the registration form. It included current year in medical school or residency training, name of medical school, and whether or not one was applying for plastic surgery residency training this fall/winter 2020. Because there are 2 formal tracks for plastic surgery training (independent and integrated), participants were also asked whether they would be applying for an integrated or independent position.

Additional demographic information was collected at the start of the webinar, including how attendees had been informed about the webinar event and whether or not their home medical school had a plastic surgery training program. Several poll questions were posed throughout the webinar, including attendees' confidence levels in their ability to match into plastic surgery during the COVID-19 era both at the beginning and at the end of the webinar, and what specific topics were most concerning about the residency application process (Table 2).

Within the webinar, discussions were held addressing specific concerns about this year's application cycle according to questions applicants had posed during the registration process. These included how COVID-19 and this year's lack of sub-internship season will impact the plastic surgery residency application process, how to optimize one's application strengths given the COVID-19 pandemic, changes to the usual interview procedures, and the ways through which students can show interest in a program, given the social climate surrounding the pandemic. The AAMC recommendations for virtual interviews were presented to the attendees as well. (See **pdf, Supplemental Digital Content 2**, which displays the AAMC virtual interview tips for medical school interviewers document. <http://links.lww.com/PRSGO/B508>.)

A post-webinar survey was emailed to all webinar attendees. It included questions about the status of plastic surgery interest groups at their medical school, whether the attendee had already completed a plastic surgery clinical rotation, and the perceived level of importance of several portions of the application process (sub-internships, personal statements, letters of recommendation, and interviews) (Table 3). The survey was sent again to non-respondents approximately 48 hours after the original survey. All data were collected anonymously.

Data were analyzed with STATA, version 13.0 (StataCorp, College Station, Tex.). Categorical variables were described using frequencies and percentages. Likert-scale data were treated as ordinal variables. Paired Likert-scale data were compared using the Wilcoxon signed rank test. Associations between Likert scale data and demographic variables, such as associations between webinar

Table 1. Demographics Information of Participants Who Completed the Post-webinar Survey

	N (%)
Current year in medical school	
MS1	10 (7.6)
MS2	6 (4.6)
MS3	47 (35.9)
MS4	36 (27.5)
Research year (in medical school)	16 (12.2)
Research year (after medical school)	7 (5.3)
Current resident	6 (4.6)
Region	
Midwest	22 (16.8)
Northeast	44 (33.6)
South	31 (23.7)
West	11 (8.4)
International	20 (15.6)
Gender*	
Women	75 (57.3)
Men	55 (42.0)
Nonbinary	1 (0.8)
Race/ethnicity†	
African American	8 (6.2)
Asian	37 (28.5)
Native American/Alaska Native	0
White	67 (51.5)
Other	8 (6.2)
Type of PRS program at home institution	
Integrated	56 (42.8)
Independent	5 (3.8)
Both	20 (15.3)
None	50 (38.2)
PRS interest group at home institution	
Yes, and active member	61 (46.6)
Yes, but not a member	15 (11.5)
No	48 (36.6)
N/A	7 (5.3)
Completed plastic surgery clinical rotation(s) before webinar?	
Yes	82 (63.1)
Taken time off during or after medical school?	
Yes	42 (32.6)
Will be applying into plastic surgery this upcoming 2020–21 application cycle?	
Yes	97 (74.6)

*Three participants did not answer.

†One participant did not answer.

usefulness and having a home program, were tested for using the Wilcoxon rank sum test. Associations between categorical variables were analyzed using a chi-square or Fisher's exact test. Statistical significance was set at $P < 0.05$.

RESULTS

Demographics

An estimated 192 respondents participated in the webinar and were sent a post-webinar survey. A total of 131 survey responses (response rate: 68.2%) were received. There were 75 women (57.3%), 55 men (42%), and 1 non-binary (0.8%) respondent. Actively enrolled medical students comprised 75.6% of respondents, with an additional 12.2% who were taking dedication research time, pursuing a secondary degree program (ie, MPH, MBA, MPP, etc), or taking time for other pursuits outside medical school at the time of the webinar. The remaining participants were either taking additional time off after medical school or were already in an unspecified residency program. Geographically the US respondents were

Table 2. Poll Questions Posed to Participants during the Webinar

Question	Answer Choices
1. How did you hear about this webinar?	a) Instagram b) Facebook c) Twitter d) Harvard Plastic Surgery website e) Student Doctor Network f) Google Document for Applications g) Professional Society h) Medical School i) Mentor j) Other
2. Does your medical school have a plastic surgery residency program?	a) Yes—Integrated b) Yes—Independent c) No
3. How confident are you in matching into plastic surgery during the COVID-19 pandemic? (Asked both at the beginning and at the end of the webinar)	a) Not at all confident b) Slightly confident c) Moderately confident d) Quite confident e) Extremely confident
4. What are you most concerned about in trying to match in plastic surgery during the COVID-19 pandemic?	a) Lack of sub-internships b) Obtaining letters of recommendation c) Virtual interviews d) Learning about programs e) Expressing interest in programs f) Finding research opportunities
5. How useful was this webinar?	a) Not at all useful b) Slightly useful c) Moderately useful d) Quite useful e) Extremely useful

most commonly from the Northeast (33.6%) and South (23.7%), and 15.6% were international participants. Table 1 highlights demographic information.

Most respondents (74.6%) were planning to apply to a plastic surgery residency program during the upcoming 2020–21 application cycle, with a majority (96.8%) applying to an integrated plastic surgery residency program. A total of 63.1% of respondents had already completed at least one clinical rotation on a plastic surgery service before the start of the webinar. Of those respondents who had already completed a plastic surgery clinical rotation, 33.7% had been on rotation for 2 weeks or less, 41.9% for 3–4 weeks, 11.6% for 5–8 weeks, and 12.8% had completed greater than 8 weeks on a plastic surgery rotation (Fig. 1).

A total of 38.2% of respondents did not have a plastic surgery residency training program at their home institution. Of the remaining respondents, 42.3% had only an integrated program at their home institution, 3.8% had only an independent program, and 15.3% had both integrated and independent residency programs at their home institution. Most commonly, respondents (46.6%) were active members of their home institution's plastic surgery interest group for medical students. When asked about taking dedicated time for other pursuits (research, secondary degrees, etc) during or after medical school, 32.6% confirmed they had done so. Of those individuals, a majority (57.1%) had taken 1 year for additional pursuits outside medical school, 26.2% had taken 2 years, and

Table 3. Post Webinar Questions Sent to Participants

Question	Answer Choices
1. Before the COVID-19 pandemic, how important did you believe away rotation sub-internships were for an applicant's overall residency application?	a) Not important b) Slightly important c) Moderately important d) Quite important e) Essential
2. How important do you believe letters of recommendation are for an applicant's overall residency application?	a) Not important b) Slightly important c) Moderately important d) Quite important e) Essential
3. How important do you believe personal statements are for an applicant's overall residency application?	a) Not important b) Slightly important c) Moderately important d) Quite important e) Essential
4. How important do you believe residency interviews are for applicant's overall residency application?	a) Not important b) Slightly important c) Moderately important d) Quite important e) Essential
5. How important is social media presence in getting to know a program?	a) Not important b) Slightly important c) Moderately important d) Quite important e) Essential
6. How often do you interact (follow, browse, like photographs, tag) with social media accounts of plastic surgery residency programs?	a) Never b) Monthly c) Weekly d) Daily e) Multiple times per day

16.7% had taken more than 2 years. Of the 44 respondents who had taken time for additional pursuits during or after medical school, 75% did so to pursue formal research activities while 15.9% pursued a separate secondary degree program.

Self-reported Beliefs regarding Residency Application Elements

When asked about the importance of various aspects of the residency application process (assessed using a Likert scale with answers ranging from “essential” to “not important”), letters of recommendation were thought to be most essential (86.6%), followed by interviews (77.3%), sub-internships (66.4%), and personal statements (22%).

Effect of Webinar on Self-reported Confidence in the Application Process

Overall, respondents were more confident about matching into a plastic surgery residency program at the end of the webinar compared with at the beginning ($P < 0.001$; Figure 2). Respondents who did not have a plastic surgery residency program at their home institution were less confident at the start of the webinar ($P = 0.009$). In addition, respondents who had not taken time off for research or other endeavors during or after medical school were less confident at the start of the webinar ($P = 0.034$). No associations were found between gender, the status of a home residency program, international location, presence and/or membership in a plastic surgery interest group, prior plastic surgery rotations completed, and time off during or after medical school and changes in confidence levels after the webinar.

Have you completed a rotation on a clinical plastic surgery service?

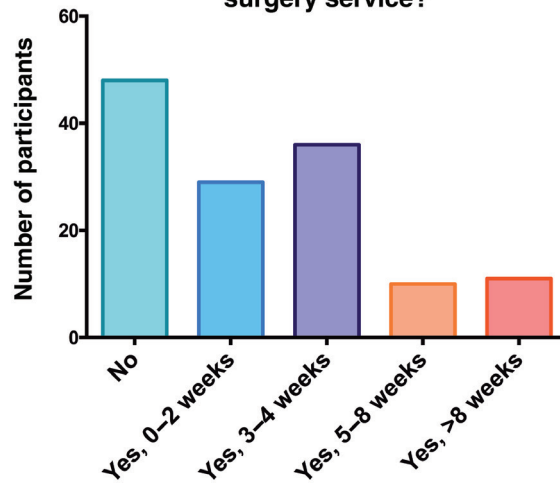


Fig. 1. Bar diagram showing the participants' responses on completing a clinical rotation on a plastic surgery service before attending the webinar. Most participants had not completed a rotation.

How confident are you about matching?

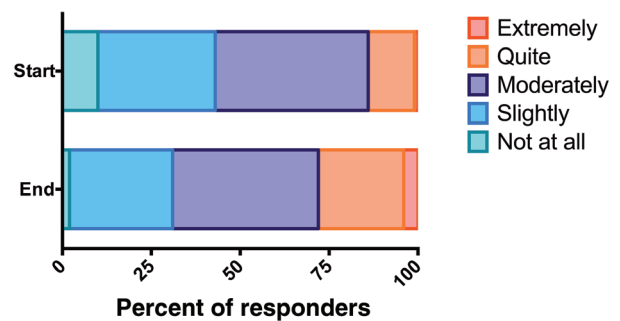


Fig. 2. Bar diagram displaying participants' confidence about matching into a plastic surgery residency program, which was significantly improved by the end of the webinar.

Social Media

Participants were most likely to be informed about the webinar through Instagram (31.3%), as seen in Figure 3. The second most common forum through which applicants heard about the webinar was through an online open-access spreadsheet that circulates among medical students interested in plastic surgery (14.8%). Respondents most commonly follow social media accounts of plastic surgery programs weekly (32.8%) and at least 63% of respondents interact with social media accounts of programs on a weekly (or more frequently) basis. Social media accounts of residency programs were most often reported as moderately important for applicants trying to get to know programs.

Participant Feedback

When asked about the topic most concerning to them, participants most often responded citing lack of sub-internship rotations (35.2%), followed by inability to express interest to programs (14.2%) and virtual

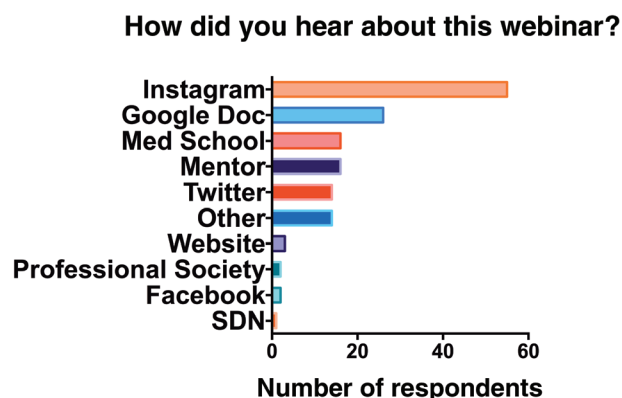


Fig. 3. Bar diagram showing the data on how participants get to know about the webinar. The participants were most likely to hear about the webinar from Instagram, a Google document circulated among applicants, or from their medical school.

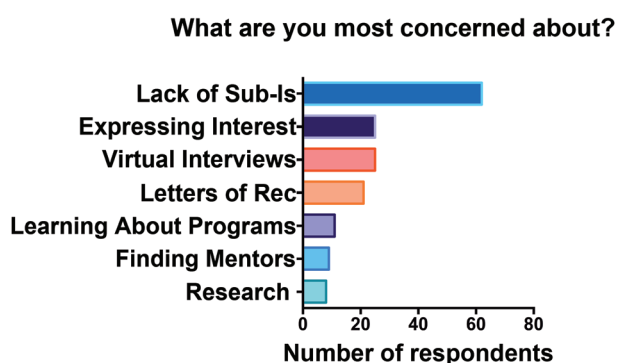


Fig. 4. Bar Diagram depicting the respondents' concerns. Participants were most concerned about a lack of sub-internships during the COVID-19 pandemic, methods for expressing interest in plastic surgery residency programs, and virtual interviews.

interviews (14.2%), obtaining letters of recommendation (11.9%), learning about programs (6.3%), finding mentors (5.1%), and finding research opportunities (4.6%) (Fig. 4).

Overall feedback from participants was overwhelmingly positive, with over 75% of respondents finding the webinar either “extremely useful” or “quite useful.” Future suggestions for webinar topics, in order of popularity, included topics on how to succeed during a virtual interview, how to learn about residency programs virtually, social media as a plastic surgery residency applicant, mentorship, strategies to get involved in research, learning more about the Harvard program specifically, and applying as an independent resident candidate.

DISCUSSION

The COVID-19 pandemic has resulted in the cessation of visiting sub-internships for medical students interested in plastic surgery during this upcoming application cycle. Our program held an online hour-long webinar to answer questions, provide insights, and lend advice about some of the expected changes to the residency application process

as a result of the pandemic. Poll surveys during and after the webinar were conducted by the authors and were sent to all participants. We hypothesized that changes to the application process due to the COVID-19 pandemic negatively affected medical student confidence levels toward matching into a plastic surgery residency training program. Results from our study indicate that an educational 1-hour webinar hosted by a plastic surgery residency program increases self-reported confidence levels for students interested in matching into plastic surgery. Our results also show that students without a home program and those who had not taken time off for research or other endeavors were less confident about their ability to match into plastic surgery at the beginning of the webinar. Since confidence levels are internally defined for each individual, our self-reported assessment of confidence levels reflects an important outcome that we sought to measure.

Webinars are effective tools in medical education.^{4,5} They are an effective method for transmitting knowledge to a vast audience and have become exponentially more popular during the current pandemic.^{5,6} Previously published studies regarding online webinars hosted by residency programs have also shown effective results. Fereydooni et al. showed that a national webinar hosted by recently matched students improves medical students' understanding of the application process for integrated vascular surgery programs.⁶ Another study by Sura and colleagues described a webinar developed and hosted by a radiation oncology program that received positive feedback in assisting medical students during the application process.⁷ We also found similar results with a significant increase in confidence levels. In addition, over 75% of respondents described the webinar as either “extremely useful” or “quite useful.”

The plastic surgery match continues to be among the most competitive specialties in the National Residency Match Program (NRMP). Successful applicants match at an average rate of 85.7% and have among the highest USMLE board score averages across all specialties.⁸ Medical students interested in matching into plastic surgery have traditionally relied heavily on visiting rotations and sub-internships.^{2,9,10} Performing 3 or more rotations at outside institutions has become the norm in recent years for integrated applicants.³ Incurring a significant cost burden has also become commonplace, with 1 recent study finding plastic surgery applicants spent an average of \$3591 per applicant on visiting rotations.¹⁰ In the same study, 91.1% of the applicants believed an away rotation made them more competitive, and program directors surveyed stated a strong away rotation performance as the most important residency selection criterion. Among the most recent intern year class, 67% participated in a rotation at the institution where they matched.³

With the widespread changes in the residency application process this year due to the COVID-19 pandemic, different aspects of the residency application may be weighted more than during previous application cycles. When asked regarding the importance of several elements of the plastic surgery residency application process in our study, a majority of survey respondents believed that letters

of recommendation, interviews, and sub-internships were “essential.” This is in accordance with prior studies, which have shown that applicants generally consider interviews, away rotations, and personal experiences with residents as the most important elements when evaluating a residency program.¹¹ Another study by Rogers and colleagues found that quality interactions, both with faculty and with residents, are the most important factors an applicant considers when ranking a program.¹²

Interestingly, only 22% of respondents in our study believed personal statements were “essential” to the overall application process. Personal statements have previously been shown to have very little correlation with applicants matching into highly competitive surgical residency programs.¹³ One study from the Scott and White general surgery residency program found little interrater reliability and a lack of objective criteria with regards to evaluation of personal statements.¹⁴ In our experience, during the plastic surgery application process applicants are advised to write personal statements that are generic descriptions of themselves and to describe the reasons for choosing plastic surgery as a career. However, no formal studies have been performed evaluating the exact value of the personal statement in the plastic surgery rank process. In fact, survey studies of plastic surgery program directors evaluating resident selection protocols in both the integrated and independent pathways did not even include personal statements as an option for evaluating and selecting candidates.^{2,15} It is our opinion this may change during the 2020-2021 cycle with more emphasis placed on personal statements, given the lack of other more objective evaluation methods, such as sub-internship rotations. Educating medical students regarding these potential changes may be beneficial.

Social media continues to gain traction in the plastic surgery community and has become a significant method for medical students to learn about and connect with residency programs.^{16–18} Instagram was the most common platform through which participants learned about our webinar. Furthermore, at least 63% of survey respondents stated they interact with social media accounts of plastic surgery residency programs on a weekly basis or more frequently, and only 9.2% of respondents stated they did not believe social media was important in getting to know a residency program. Further bolstering the fact that social media accounts continue to play a large role in the residency application process, the COVID-19 pandemic’s effect on away rotations leaves medical students with fewer in-person opportunities to experience programs outside their home institutions. We believe that residency program social media accounts will continue to develop and will play more vital roles during the recruitment process from both the programs’ and applicants’ perspectives. Importantly, applicant social media accounts are not currently part of the residency application process. Without further official society guidelines, these accounts should not be considered an additional evaluative tool.

There were several limitations to this study. Like all survey studies, response rates were limited, and we did not capture all webinar participants’ responses. Furthermore,

we were not able to capture any long-term observations regarding the efficacy of our webinar on the knowledge and confidence of medical students over time. Our study represents the experience of one residency program. Future studies examining multi-institutional experiences with webinars, or pooling data from multiple webinar experiences, would be useful in strengthening the findings of this study. Finally, our webinar was intended for an audience of participants interested in applying to plastic surgery residency programs within the United States; however, approximately 15.6% of survey respondents were from international backgrounds. There were no international graduates or experts on our webinar panel.

CONCLUSIONS

This study showed that a webinar program increased confidence levels of medical students interested in applying for residency positions in plastic surgery and should be considered by residency programs as a means to educate medical students. As away rotation sub-internships will not take place for the foreseeable future, online platforms, including various forms of social media, will play a larger role in the plastic surgery application process. Plastic surgeons are often rapid adopters of novel approaches, and as plastic surgery educators, we are similarly adaptive to the rapidly evolving challenges this pandemic has presented, using newer tools to provide guidance to potential applicants.

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REFERENCES

1. Mehta K, Sinno S, Saadeh PB, et al. Swings and roundabouts: paradoxes of the away rotation. *Plast Reconstr Surg*. 2015;136:293e.
2. Janis JE, Hatef DA. Resident selection protocols in plastic surgery: a national survey of plastic surgery program directors. *Plast Reconstr Surg*. 2008;122:1929–1939; discussion 1940.
3. Molina Burbano F, Pasick C, Torina PJ, et al. Away rotations in plastic and reconstructive surgery: a survey of program directors. *Plast Reconstr Surg*. 2020;145:235e–236e.
4. Sura K, Lischalk JW, Leckie J, et al. Webinar-based contouring education for residents. *J Am Coll Radiol*. 2017;14:1074–1079.e3.
5. Wagner F, Knipfer C, Holzinger D, et al. Webinars for continuing education in oral and maxillofacial surgery: the Austrian experience. *J Craniomaxillofac Surg*. 2019;47:537–541.
6. Fereydooni A, Ramirez JL, Dossabhoy SS, et al. A national post-Match webinar panel improves knowledge and preparedness of medical students interested in vascular surgery training. *J Vasc Surg*. 2020;71:1733–1740.e5.
7. Sura K, Lischalk JW, Leckie J, et al. Applying for radiation oncology residency: webinar-based medical student mentorship outreach. *Int J Radiat Oncol Biol Phys*. 2017;97:11–12.
8. National Resident Matching Program. *Charting Outcomes in the Match for US Allopathic Seniors*. Washington, DC: National Resident Matching Program; 2016.
9. Claiborne JR, Crantford JC, Swett KR, et al. The plastic surgery match: predicting success and improving the process. *Ann Plast Surg*. 2013;70:698–703.

10. Drolet BC, Brower JP, Lifchez SD, et al. Away rotations and matching in integrated plastic surgery residency: applicant and program director perspectives. *Plast Reconstr Surg*. 2016;137:1337–1343.
11. Sinno S, Mehta K, Squitieri L, et al. Residency characteristics that matter most to plastic surgery applicants: a multi-institutional analysis and review of the literature. *Ann Plast Surg*. 2015;74:713–717.
12. Rogers CR, Gutowski KA, Munoz-Del Rio A, et al. Integrated plastic surgery residency applicant survey: characteristics of successful applicants and feedback about the interview process. *Plast Reconstr Surg*. 2009;123:1607–1617.
13. Stain SC, Hiatt JR, Ata A, et al. Characteristics of highly ranked applicants to general surgery residency programs. *JAMA Surg*. 2013;148:413–417.
14. White BA, Sadoski M, Thomas S, et al. Is the evaluation of the personal statement a reliable component of the general surgery residency application? *J Surg Educ*. 2012;69:340–343.
15. Nguyen AT, Janis JE. Resident selection protocols in plastic surgery: a national survey of plastic surgery independent program directors. *Plast Reconstr Surg*. 2012;130:459–469.
16. Chandawarkar AA, Gould DJ, Stevens WG. Insta-grated plastic surgery residencies: the rise of social media use by trainees and responsible guidelines for use. *Aesthet Surg J*. 2018;38:1145–1152.
17. Timberlake AT, Wu RT, Cabrejo R, et al. Harnessing social media to advance research in plastic surgery. *Plast Reconstr Surg*. 2018;142:1094–1100.
18. Irwin TJ, Riesel JN, Ortiz R, et al. The impact of social media on plastic surgery residency applicants. *Ann Plast Surg*. 2020.