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Original Research

Identification of Candidate Characteristics that Predicted a Successful Anesthesiology Residency Program Match in 2024: An Anonymous, Prospective Survey

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Introduction

Medical students pursuing a career in anesthesiology participate in the National Residency Matching Program (NRMP), a process through which students apply, interview, submit a rank list of programs in order of preference, and subsequently match into a finite number of training spots. Matching into an anesthesiology residency program has grown increasingly competitive in recent years. Between 2022 and 2023, the percentage of matched fourth year US allopathic medical students who matched into anesthesiology dropped from 90 to 83%.[1] Final data tables released by the NRMP reported that match rates for US allopathic senior medical students were 70% and 17% for positions that started in postgraduate year 1 (PGY-1) and PGY-2, respectively.[2] NRMP "Charting Outcomes" data, which only included 1327 US allopathic senior medical students who provided consent, reported a match rate of 86%.[3] There are numerous factors affecting performance in the residency match, including US Medical Licensing Examination (USMLE) scores, medical school class ranking, and completion of anesthesiology rotations outside of home institutions.[3] Additionally, the ability to send 5 signals to residency programs was introduced for applicants in the 2023 Match, and applicants in the 2024 Match were given the opportunity to send 5 gold and 10 silver signals.[4] In this current environment, mentors and medical students may struggle to accurately assess applicant competitiveness. Moreover, the introduction of gold and silver signals complicates the landscape for potential applicants to anesthesiology residency programs. The primary aim of our study was to identify candidate characteristics that predicted a successful outcome for applicants to anesthesiology residency programs in the 2024 Main Residency Match. The secondary aim of our study was to assess the impact of gold and silver signals on the application process.

Methods

The Baylor Scott & White Research Institute institutional review board approved this study (024-225) and waived the requirement for documentation of informed consent. Participants affirmed consent to participate in the study by selecting "yes" on the question regarding consent to participate. The survey only displayed additional questions for respondents that clicked "yes." This was an anonymous, prospective survey that asked applicants to anesthesiology residency programs for the 2024 Match questions about their demographic and academic characteristics. The survey instrument (Appendix A) was developed using a collaborative consensus process by the 3 investigators that encompassed 2 virtual meetings. The instrument was piloted by 2 members of the study team (MPH and TP) before commencement of the survey. This piloting consisted of completing the survey multiple times with different hypothetical answers that confirmed the accuracy of the branching logic embedded within the survey. Participants' self-reported demographics, measures of academic performance (board exam scores and class rank quartiles), presence or absence of affiliated anesthesiology residency, completion of anesthesiology rotation outside of their home institution (away rotation), and number of interview invitations were uploaded onto a REDCap survey hosted at the Baylor Scott & White Research Institute. Respondents were allowed to indicate multiple ethnicities and races. By consensus, study investigators agreed to use 2 popular social media platforms to distribute the survey. Between March 19 and March 20, 2024, author TP shared a post on X (X Corp, San Francisco, CA) and TikTok (Los Angeles, CA) with a link to the survey. At the time, author TP had approximately 27 000 followers on X and 44 000 followers on TikTok. Authors MPH and JW shared the post on their X accounts and had approximately 2700 and 2400 followers on X, respectively. The post on X tagged 10 other physicians or medical students with a large number of followers asking them to share the survey with their respective social networks. Participants

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were able to access the survey from March 19, 2024, to March 28, 2024. Answers to the open-ended questions were analyzed, and responses deemed to be double entries were deleted along with the corresponding objective data for each respondent.

Descriptive statistics were used to describe characteristics of the sample collected. A Kolmogorov-Smirnov test was used to assess whether data followed a normal distribution. A χ^2 test (or Fisher's exact test when cell counts less than 5 were present) for categorical variables and a 2-sample *t* test (or Wilcoxon signed-rank test when data were not normal) were used to test for associations in bivariate comparisons. Statistical significance was determined a priori at a level of .05. All statistical analyses were performed with SAS 9.4 (SAS Institute, Cary, NC).

Results

One hundred and forty surveys were completed, and 3 pairs of duplicate responses were identified. One hundred and fourteen matched and 23 unmatched applicants comprised the final cohorts. Three thousand and thirty-four and 2011 applicants applied for anesthesiology residency positions to begin in PGY-1 and PGY-2, respectively.[2] There were 1695 and 305 matched applicants in anesthesiology residency positions to begin in PGY-1 and PGY-2, respectively.[2] Seventy (51%) of the survey respondents who indicated gender were female. Sixty-one (45%) respondents identified as White or Caucasian only. Matched applicants reported a higher mean USMLE score than unmatched applicants (252 versus 245, $P < .01$). Eighty-two (72%) and 16 (70%) matched and unmatched applicants, respectively, reported their class rank stratified by quartile. Thirty (26%) and 4 (17%) matched and unmatched applicants, respectively, indicated that their medical schools did not report a class rank. Class rank quartile was significantly different between matched and unmatched applicants for whom class rank was reported ($P = .03$). The type of medical school (US allopathic, US osteopathic, and international medical school) and match outcome did not differ significantly between matched and unmatched applicants ($P = .11$). All survey respondents reported that they used all 5 of their gold and all 10 of their silver signals in the application process. Matched applicants submitted a mean of 59 applications and received an average of 11 interview invitations, of which a median of 1 interview came from programs that did not receive a gold or silver signal. Unmatched applicants submitted a mean of 70 applications and received an average of 6 interview invitations, of which a median of 1 interview came from programs that did not receive a gold or silver signal. Complete self-reported demographic and academic data are presented in Table 1.

Eighty-three, 37, and 17 respondents indicated that they were from US allopathic, US osteopathic, and international medical schools, respectively. US allopathic respondents had a match rate of 87%, which was similar to the 84% rate of US osteopathic respondents ($P = .67$) but was higher than the 65% match rate of International Medical Graduates ($P = .03$). The match rates of US osteopathic respondents and International Medical Graduate respondents were similar ($P = .12$). US allopathic students applied to a mean of 51 anesthesiology residency programs compared with 67 for US osteopathic respondents ($P < .01$) and 93 for International Medical Graduate responses ($P < .01$). Complete data for the cohorts stratified by medical school type are presented in Table 2.

In the open-ended questions, applicants discussed the importance of doing away rotations at programs where they were interested in applying, using signals strategically with some reach and safety programs, securing strong letters of recommendation, preparing for interviews through mock interviews, participating in second looks if available, aligning application and signals to geographic preferences, and having mentors review applications and offer honest feedback about competitiveness. Applicants discussed that they used more signals for safety programs and/or programs where they had a geographic connection or preference, did more networking or participated in conferences or other opportunities to gain visibility, and did more away rotations. Of note, no respondent indicated that they wished they would have done fewer away rotations. A complete list of topics generated from the open-ended survey questions stratified by matched and unmatched applicants is presented in Table 3.

Discussion

Our study found that matched applicants had a USMLE Step 2 score that was approximately 7 points higher than unmatched applicants and that matched applicants received almost twice as many interview invitations as unmatched applicants. Our study also found that matched applicants submitted approximately 44 applications without a gold or silver signal that yielded 1 interview invitation compared with unmatched applicants who submitted approximately 55 applications without a signal that also yielded 1 interview invitation.

In our study, measures of academic success were significantly associated with performance in the anesthesiology match process. Successfully matched applicants earned a USMLE Step 2 score that was, on average, 7 points higher than unmatched applicants. Although the average USMLE Step 2 score of unmatched applicants was 245, this score was associated with an approximately 80% chance of matching for US allopathic seniors[3] and a 45% chance of matching for International Medical Graduates based on data from applicants who provided consent to the NRMP.[5] One-third of matched applicants were ranked in the first quartile of their medical school class compared with 13% of unmatched applicants. In a prospective, iterative survey study of anesthesiology residency program directors, Hofkamp et al reported that 10 out of 10 participants planned to use USMLE Step 2 scores in their candidate selection for residency and that a score of 252 or higher was associated with an "exceptional" applicant.[6] Our findings in the present study suggest that academic and test performance is essential to prospective anesthesiology applicants and that this component of the application could potentially overshadow volunteering activities or research publications.

Presence of an affiliated anesthesiology residency was not associated with success in the anesthesiology match. This finding was unexpected, given the expected advantages

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for applicants including mentorship, a guaranteed senior anesthesiology rotation, and accessibility of letters of recommendation. Matched applicants also did not complete more away rotations than unmatched applicants.

In the 2024 Match, anesthesiology residency applicants were given the opportunity to send 5 gold signals and 10 silver signals to the residency programs of their choice.[4] The effect of this intervention on interview applications was unknown. In our study, matched applicants applied to a mean of 44 programs without a gold or silver signal and received a median of 1 interview invitation, and unmatched applicants applied to a mean of 55 programs and also received a median of 1 interview invitation. Given that all applicants reported using all of their gold and silver signals, using the Association of American Medical Colleges Electronic Residency Application Service fee structure for the 2025 Match,[7] matched applicants would spend $750 on applications to programs without a gold or silver signal to gain 1 interview invitation, whereas unmatched applicants would spend $1080 on applications to programs without a gold or silver signal to also gain 1 interview. In the 2022 Match, the last match that did not use signals of any kind for anesthesiology, the average number of applications submitted for all applicants for all specialties was 57.4.[8] The addition of gold and silver signals does not appear to have lowered the number of applications per applicant.

We stratified results by type of medical school attended and found many differences between the cohorts. Although USMLE Step 2 scores were similar between the cohorts, International Medical Graduate respondents reported applying to more than twice as many residency programs as US allopathic respondents and had about half as many interview invitations. The US allopathic respondent match rate for our survey was 87%, which corresponded to the reported match rate of 86% for applicants who consented to release of NRMP data.[3] By contrast, our US osteopathic and International Medical Graduate match rates of 84% and 65%, respectively, were higher than the NRMP match rates of 59% and 47%,[5] respectively, from applicants who consented to release of data. It is likely that US osteopathic and International Medical Graduate respondents to our survey were more qualified than the average applicants of these respective cohorts.

The most significant limitation of our study was that only 137 applicants completed our survey, while over 3000 applicants applied for 1695 and 305 PGY-1 and PGY-2 anesthesiology residency positions, respectively, and approximately 2000 applicants matched in an anesthesiology residency position to begin in PGY-1 and PGY-2.[2] Additionally, due to the nature of the recruitment of our respondents, it is impossible to determine the response rate of our survey. We also did not have data regarding the demographics of people who viewed the recruitment material, engagement rate, how many views by region, shares, and comments. We had a simple strategy to disseminate recruitment materials by having author TP create a post on her X account with amplification by authors MPH and JW and to have author TP post materials on her Tik Tok account without amplification by authors MPH and JW. A more organized approach to recruitment that used sources of recruitment outside of social media might have improved the number of respondents. The nature of recruiting respondents using social media platforms undoubtedly missed respondents with less or no social media use. However, we believe that the respondents of our survey approximated the larger applicant pool. Sixty-one percent, 26%, and 12% of our respondents indicated that they were US allopathic, osteopathic, and international medical school graduates, respectively. This distribution was similar to the 56%, 19%, and 25% of applicants who were US allopathic, osteopathic, and international medical school graduates who applied to anesthesiology categorical positions in the 2024 Match.[2] The authors conceptualized the idea of creating the survey during the week of the 2024 Match after receiving notice from qualified applicants that they did not match, and a longer time to develop the survey might have improved the survey quality and validity. For example, we did not ask about "red flags" identified by Hofkamp et al,[6] including professionalism issues and failed USMLE exams. We did not ask the respondents to list the name of the medical school that they attended so that anonymity could be preserved. Although the ranking of the respondents' medical school could provide valuable insight, we did not ask this question due to the ambiguous nature of how medical schools are ranked. We did not ask about ability to work in the United States and the need for work visas, and this question could have also provided additional context. We did not ask applicants about the total number of anesthesiology rotations completed, including those at home institutions, and this variable could have had an association with match outcome. We did not specifically ask whether the applicant matched into a program where they sent a gold, silver, or no signal. Additionally, we did not ask any questions about geographical signaling. For the subjective comments, we did not conduct a formal qualitative analysis, which could have identified themes. Other limitations include the self-reported nature of the study, the convenience sample, and lack of additional information from other sources.

In conclusion, the results of our study indicate that matched applicants had higher self-reported USMLE Step 2 scores and interview invitations than unmatched applicants. Additionally, applications to programs that did not receive a gold or silver signal resulted in only 1 additional interview invitation that was associated with a high financial cost to the applicant. Dissemination of the results of this study could result in applicants submitting fewer applications, saving application fees. Lower numbers of applications could also decrease the screening workload for residency programs. Future studies are needed to assess the impact of gold and silver signals on the anesthesiology residency matching process after signals are used for several years.

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continued from previous page

References

1. National Resident Matching Program. NRMP's 70th anniversary—2023 Main Residency Match and SOAP results webinar. https://www.youtube.com/watch?v=DbW5zobOPxA. Accessed May 24, 2024.
2. National Resident Matching Program. Results and data: 2024 Main Residency Match. https://www.nrmp.org/match-data/2024/06/results-and-data-2024-main-residency-match/. Accessed September 3, 2024.
3. National Resident Matching Program. Charting Outcomes: characteristics of U.S. MD seniors who matched to their preferred specialty: 2024 Main Residency Match. https://www.nrmp.org/match-data/2024/08/charting-outcomes-characteristics-of-u-s-md-seniors-who-matched-to-their-preferred-specialty-2024-main-residency-match/. Accessed September 3, 2024.
4. Society of Academic Associations of Anesthesiology & Perioperative Medicine. Changes to the 2023-2024 ERAS application. https://www.saaapm.org/2024-program-signaling. Accessed September 3, 2024.
5. National Resident Matching Program. Charting Outcomes: characteristics of International Medical Graduates who matched to their preferred specialty: 2024 Main Residency Match. https://www.nrmp.org/match-data/2024/08/charting-outcomes-characteristics-of-international-medical-graduates-who-matched-to-their-preferred-specialty-2024-main-residency-match/. Accessed September 3, 2024.
6. Hofkamp MP, Saddawi-Konefka D, Teeter EG, et al. Identification, characterization, and ranking of candidate metrics for selection to anesthesiology residency: an iterative survey of program directors. *J Educ Perioper Med.* 2024;26(2):E724.
7. American Association of Medical Colleges. Fees for 2025 ERAS season. https://students-residents.aamc.org/applying-residencies-eras/publication-chapters/fees-2025-eras-season. Accessed September 3, 2024.
8. ERAS® Statistics. https://www.aamc.org/data-reports/data/eras-statistics-data. Accessed May 24, 2024.
9. National Resident Matching Program. Charting Outcomes: characteristics of U.S. DO seniors who matched to their preferred specialty: 2024 Main Residency Match. https://www.nrmp.org/match-data/2024/08/charting-outcomes-characteristics-of-u-s-do-seniors-who-matched-to-their-preferred-specialty-2024-main-residency-match/. Accessed September 3, 2024.

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Abstract

Background: The primary aim of our study was to identify candidate characteristics that predicted a successful outcome for applicants to anesthesiology residency programs in the 2024 Main Residency Match. The secondary aim of our study was to assess the impact of gold and silver signals on the application process.

Methods: The Baylor Scott & White Research Institute institutional review board approved this study. Study investigators created a REDCap survey by consensus that included questions about demographic and academic characteristics for participants in the 2024 Match who applied to anesthesiology residency programs. A link to an invitation to participate in our study was posted to 2 social media platforms. The survey was accessible from March 19, 2024, to March 28, 2024.

Results: One hundred and fourteen matched and 23 unmatched applicants completed the survey. Matched applicants reported a higher mean US Medical Licensing Examination Step 2 score than unmatched applicants (252 versus 245, $P < .01$) along with more interview invitations (11 versus 6, $P < .01$). Matched and unmatched applicants submitted a mean of 44 and 55 applications to residency programs without a gold or silver signal, respectively, that resulted in a median of 1 interview invitation for both cohorts.

Conclusions: The results of our study indicate that matched applicants had higher self-reported US Medical Licensing Examination Step 2 scores and interview invitations than unmatched applicants. Additionally, applications to programs that did not receive a gold or silver signal yielded only 1 additional interview invitation and resulted in a high financial cost to the applicant.

Keywords: Medical education undergraduate, medical education graduate, residency and internship, anesthesiology

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Tables

Table 1. *Self-Reported Demographic and Academic Characteristics of Matched and Unmatched Applicants*

Variable	Matched (*N* = 114)	Unmatched (*N* = 23)	*P* Value
Sex			.32
Female	56 (50%)	14 (61%)	
Male	57 (50%)	9 (39%)	
Prefer not to answer	1	0	
Race			.40
American Indian or Alaskan Native	0	0	
Asian	27 (24%)	9 (39%)	
Black or African American	15 (13%)	2 (9%)	
Hispanic	11 (10%)	4 (17%)	
Native Hawaiian or Pacific Islander	1 (1%)	0	
White or Caucasian	54 (48%)	7 (30%)	
Prefer not to answer	2	0	
Other race	4 (4%)	1 (4%)	
Medical school			.08
US allopathic	72 (63%)	11 (48%)	
US osteopathic	31 (27%)	6 (26%)	
International Medical Graduate	11 (10%)	6 (26%)	
USMLE Step 2 score (mean ± SD)	252 ± 12[a]	245 ± 12	.01[b]
Class rank			.03[b,c]
First quartile	40 (35%)	3 (13%)	
Second quartile	27 (24%)	8 (35%)	
Third quartile	9 (8%)	2 (9%)	
Fourth quartile	6 (5%)	3 (13%)	
No ranking provided by medical school	30 (26%)	4 (17%)	
Declined to answer	2 (2%)	3 (13%)	
Medical school has an affiliated anesthesiology residency (yes) (percentage)	55 (48%)	8 (35%)	.24
Completed an anesthesiology rotation outside of home medical school (yes) (percentage)	73 (64%)	11 (48%)	.14
Number of outside rotations completed (median [IQR])	2 (1-3)	2 (1-2)	.15
First time applicant for residency (yes) (percentage)	106 (93%)	19 (83%)	.11
Applied to an additional specialty (yes) (percentage)	19 (17%)	5 (22%)	.56
Anesthesiology program applications (mean ± SD)	59 ± 31	70 ± 34	.15
Total interview invitations (mean ± SD)	11 ± 5	6 ± 5	<.01[d]

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Interviews from programs that received a gold signal (median [IQR])	4 (3-5)	2 (1-3)	<.01[d]
Interviews from programs that received a silver signal (mean ± SD)	5 ± 3	3 ± 3	<.01[d]
Interviews from programs that did not receive a signal (median [IQR])	1 (0-4)	1 (0-2)	.16
Number of anesthesiology programs ranked (mean ± SD)	11 ± 4	6 ± 5	<.01[d]

Abbreviations: IQR, interquartile range; SD, standard deviation; USMLE, US Medical Licensing Examination.

[a] $N = 109$.

[b] $P < .05$.

[c] Only includes responses that indicated quartile ranking.

[d] $P < .01$.

Table 2. *Self-Reported Demographic and Academic Characteristics of Allopathic, Osteopathic, and International Medical Graduate Applicants*

	Allopathic ($N = 83$)	Osteopathic ($N = 37$)	International Medical Graduate ($N = 17$)	Allopathic Versus Osteopathic *P* Value	Allopathic Versus International Medical Graduate *P* Value	Osteopathic Versus International Medical Graduate *P* Value
Sex				.82	.35	.49
Female	44 (54%)	19 (51%)	7 (41%)			
Male	38 (46%)	18 (49%)	10 (59%)			
Prefer not to answer	1	0				
Race				.79	<.01[e]	<.01[e]
American Indian or Alaskan Native	0	0	0			
Asian	25 (31%)	8 (22%)	3 (18%)			
Black or African American	11 (14%)	4 (11%)	2 (12%)			
Hispanic	6 (7%)	2 (5%)	7 (41%)			
Native Hawaiian or Pacific Islander	1 (1%)	0	0			
White or Caucasian	36 (44%)	22 (59%)	3 (18%)			
Prefer not to answer	2	0	0			
Other race	2 (2%)	1 (3%)	2 (12%)			
USMLE Step 2 score (mean ± SD)	252 ± 13[a]	249 ± 11[b]	247 ± 10[c]	.26	.12	.50

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Class rank				.06[d]	.06[d]	.44[d]
First quartile	19 (23%)	15 (41%)	9 (53%)			
Second quartile	21 (25%)	12 (32%)	2 (12%)			
Third quartile	7 (8%)	3 (8%)	1 (6%)			
Fourth quartile	8 (10%)	0	1 (6%)			
No ranking provided by medical school	26 (31%)	5 (14%)	3 (18%)			
Declined to answer	2 (2%)	2 (5%)	1 (6%)			
Medical school has an affiliated anesthesiology residency (yes) (percentage)	61 (73%)	1 (3%)	1 (6%)	<.01[e]	<.01[e]	.53
Completed an anesthesiology rotation outside of home medical school (yes) (percentage)	41 (49%)	33 (89%)	10 (59%)	<.01[e]	.48	.02[f]
Number of outside rotations completed (median [IQR])	2 (1-3)	3 (1-4)	2 (2-2)	.04[f]	.22	.58
First time applicant for residency (yes) (percentage)	76 (92%)	36 (97%)	13 (76%)	.25	.09	.03[f]
Applied to an additional specialty (yes) (percentage)	12 (14%)	9 (24%)	3 (18%)	.19	.74	.73
Anesthesiology program applications (mean ± SD)	51 ± 27	67 ± 25	93 ± 38	<.01[e]	<.01[e]	.02[f]
Total interview invitations (mean ± SD)	11 ± 5	10 ± 5	5 ± 3	.21	<.01[e]	<.01[e]
Interviews from programs that received a gold signal (median [IQR])	4 (3-5)	4 (3-4)	2 (1-2)	.24	<.01[e]	<.01[e]
Interviews from programs that received a silver signal (mean ± SD)	5 ± 3	5 ± 2	2 ± 2	.12	<.01[e]	<.01[e]
Interviews from programs that did not receive a signal (median [IQR])	1 (0-3)	1 (0-3)	1 (0-2)	.64	.28	.53
Number of anesthesiology programs ranked (mean ± SD)	11 ± 4	10 ± 4	5 ± 3	.23	<.01[e]	<.01[e]
Matched into an anesthesiology residency (yes) (percentage)	72 (87%)	31 (84%)	11 (65%)	.67	.03[f]	.12

Abbreviations: IQR, interquartile range; SD, standard deviation; USMLE, US Medical Licensing Examination.

[a] $N = 80$.

[b] $N = 36$.

[c] $N = 16$.

[d] Only includes respondents who reported quartile class rank.

[e] $P < .01$.

[f] $P < .05$.

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Table 3. *Respondent Topics Generated From Open-Ended Questions*

"In retrospect, what decisions about the match process do you believe were the best ones and why among matched applicants" (matched applicants)
Only applying to categorical programs
Networking
Cultivate strong letters of recommendation
Participation in away/audition rotations
Applying to programs with a range of competitiveness profiles
Having a mentor review application
Presented medically challenging cases at the American Society of Anesthesiologists meeting
Aligned gold and silver signals with geographic preferences
Familiarity with residency program mission prior to interview
Knowledge about CASPER and CentralApp
Soliciting honest feedback from mentor regarding competitiveness
Personalized each personal statement to reflect interest in particular program
Attended virtual residency open houses
Ignored advice to only apply to programs where a gold or silver signal was sent
Not sending silver signals to "elite" programs
Taking USMLE Step 2 exam as an osteopathic medical student
Applying to "lower-ranked" internal medicine preliminary programs to avoid competition with applicants applying to dermatology, ophthalmology, and radiation oncology
Communicating desire to stay at home residency program early in application process
Be forthcoming about deficiencies in residency application
Not sending thank you notes or e-mails due to time required and risk of appearing ingenuine
Doing a FAER fellowship summer of M4 year
Ask home programs if they require a gold or silver signal
Only having 1 or 2 "reach" programs for gold signals
"In retrospect, what decisions about the match process do you believe were the best ones and why among matched applicants" (unmatched applicants)
Participation in away/audition rotations
Strategic ranking of transitional and preliminary programs at end of rank list
Sending signals to "big name" programs
Deciding to reapply
"In retrospect, what would you have done differently during the 2024 match process?" (matched applicants)
Participation in more away rotations
More networking
Aligned program signals with geographic preferences
Worried less
Made "second look" visits

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Send postinterview correspondence
Applied to more preliminary programs to allow application to advanced positions
Not send a signal to a program more competitive than application and expect an interview invitation
Used silver signals on programs that have taken students from applicant's school
Only applied to programs that were signaled
Knew that some residencies required CentralApp or CASPER
Use signals on less competitive programs
Reach out to preliminary programs of interest
Applied to away rotations earlier in process
Use all 3 geographic preferences
Sent silver signals to programs with larger class sizes
Be skeptical of programs' assessments of applicant competitiveness
More interview practice
"In retrospect, what would you have done differently during the 2024 match process?" (unmatched applicants)
Applied to more programs
More away rotations
More networking
Do more research
Not attempted to do a couples match
Would have explained unique and difficult circumstance on application
Applied to a backup specialty

Abbreviations: FAER, Foundation for Anesthesia Education and Research; M4, fourth year of medical school; USMLE, US Medical Licensing Examination.

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Appendix

Appendix A. REDCap Data Dictionary for Survey Instrument

Anesthesiology 2024 Match Research Survey

We are conducting a survey of 2024 anesthesiology match applicants to better understand why some applicants were successful in matching into anesthesiology and why some applicants were not. This survey is intented for persons who attempted to match into anesthesiology for the 2024 Match. Only participate in this survey if you attempted to match into anesthesiology for the 2024 Match. We will be asking you a series of questions regarding your demographic and academic characteristics. We will not be requesting any identifying data such as name, birthdate, or e-mail address. Data from this this survey could potentially inform future applicants on best practices for applying to anesthesiology. There is no direct benefit to you from participating in this survey. The risks of participating in this survey are low and include inadvertent disclosure of data. However, the risk of being identified is low because we will not be collecting any identifying data. This study is approved by the Baylor Scott & White Research Institute institutional review board (024-225). The principal investigator of this study is Michael Hofkamp, M.D. and he can be contacted at Michael.Hofkamp@bswhealth.org.

I consent to participate in the "Anesthesiology 2024 Match Survey".	◯ Yes ◯ No
Please select the choice that best describes your gender	◯ Female ◯ Male ◯ Non-binary ◯ Prefer not to answer ◯ Other
Please describe gender	_____
Please select one of the following choices that best describes your ethnicity	◯ Hispanic ◯ Not Hispanic ◯ Prefer not to answer
Please select which of the following races of which you identify (may select multiple options)	☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American ☐ Native Hawaiian or Pacific Islander ☐ White or Caucasian ☐ Prefer not to answer ☐ Other race
Please describe other race	_____
Which type of applicant best describes you	◯ United States allopathic medical student or graduate ◯ United States osteopathic medical student or graduate ◯ International medical student or graduate ◯ Prefer not to answer ◯ Other
Please describe your status	_____
Did you take USMLE Step 2?	◯ Yes ◯ No
What was your USMLE Step 2 score? (You may decline to answer this question by leaving it blank)	_____

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Did you take COMLEX Part 2?	◯ Yes ◯ No
What was your COMLEX Part 2 score? (You many decline to answer this question by leaving it blank)	_____
Which quartile best describes your class rank that was communicated in the Medical Student Performance Evaluation (MSPE)?	◯ First (top) quartile ◯ Second quartile ◯ Third quartile ◯ Fourth (bottom) quartile ◯ My medical school does not provide data regarding class rank in the MSPE ◯ Decline to answer
Does your medical school have an affiliated anesthesiology residency?	◯ Yes ◯ No
Did you do an anesthesiology rotation in another department outside of your medical school (also called "audition," "visiting," or "away")?	◯ Yes ◯ No
How many anesthesiology rotations lasting two or more weeks did you complete that were outside of your medical school?	_____
Which best describes your situation for the 2024 Match?	◯ This was the first time I applied for a residency position . ◯ This was not the first time I applied for a residency position.
Did you apply to an additional specialty other than anesthesiology for the 2024 Match?	◯ Yes ◯ No
Please describe the specialties where you applied	_____
How many anesthesia programs did you apply to?	_____
Of the five available gold signals, how many did you send?	_____
Of the ten available silver signals, how many did you send?	_____
How many interview invitations for anesthesiology residencies did you receive?	_____
How many interviews did you receive from programs where you sent a gold signal?	_____
How many interviews did your receive from programs where you sent a silver signal?	_____
How many interviews did you receive from programs you did not signal?	_____

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Appendix *continued*

How many programs did you rank for anesthesiology? (Note: if you ranked a department for categorical and advanced positions, that counts as one program)	_____
Did you match into anesthesiology prior to the SOAP process (eg you were notified on Monday of Match Week that you matched)?	◯ Yes ◯ No
What was the rank of the program on your rank list where you matched? (you may decline to answer this question by leaving it blank)	_____
Which best describes the anesthesia program where you matched?	◯ Categorical ◯ Advanced ◯ R1/Physician only (program begins at PGY2 level July 2024)
Which best describes the PGY-1 year where you matched?	◯ Preliminary internal medicine ◯ Preliminary surgery ◯ Preliminary pediatrics ◯ Transitional ◯ Other
Did you match into a position during the SOAP process?	◯ Yes ◯ No
Which best describes the type of program where you matched?	◯ Preliminary internal medicine ◯ Preliminary surgery ◯ Preliminary pediatrics ◯ Transitional year ◯ Categorical internal medicine ◯ Categorical family practice ◯ Categorical pediatrics ◯ Categorical emergency medicine ◯ Other
Describe the program where you matched	_____
In retrospect, what decisions about the match process do you believe where the best ones and why? (You may decline to answer by leaving this space blank)	_____
In retrospect, what would you have done differently during the 2024 match process?	_____