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Outcomes and approaches to program signaling during the 2021-2022 dermatology residency application cycle

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To the Editor:

During the 2021-2022 Electronic Application Residency Service® residency application cycle, the Association of American Medical Colleges (AAMC) partnered with residency programs to pilot the supplemental application. The supplemental application included a program signaling section, allowing applicants to communicate their interest to specific residency programs with the goal of better aligning applicants and programs. Dermatology applicants were allotted three program signals. Applicants were instructed not to send signals to their home programs or programs at which they rotated. We surveyed dermatology applicants and program directors (PDs) who participated in the 2021-2022 residency application process to evaluate the impact and collect feedback from the community about signaling.

Applicants and PDs who participated in the ERAS 2021-2022 application cycle were invited by Email to participate in a voluntary online survey about their approaches to program signaling. This survey was reviewed by the AAMC Human Subjects Research Protection Program and approved for publication by the Institutional Review Board of the American Institutes for Research (FWA00001666). In total, 29% (306/1,046) of applicants and 54% (74/136) of PDs responded to at least one question on the survey.

Most applicants cited three factors as most important when selecting programs to which to send program signals: geographic location of the program (84%; 248/297), perceived *good fit* (80%; 237/295), and closeness to family/friends (73%; 216/296), (**Figure 1**). Most applicants signaled their true top programs (65%; 191/294), whereas 30% signaled a mix of reach and safety programs (89/294), or signaled programs that were aligned with their geographic preferences (88/294), (**Table 1**). Most applicants (70%; 200/285) received at least one interview invitation from their signaled programs.

The majority of PDs (84%; 52/62) indicated applicants who signaled their program were more likely to receive an interview invitation. Nearly half (43%; 27/62) of PDs indicated that they interviewed at least 50% of applicants who signaled their program. However, most PDs (78%; 50/64) indicated most of their matched residents had not signaled their program. Nearly 70% (43/62) of PDs used program signals as part of their holistic review of

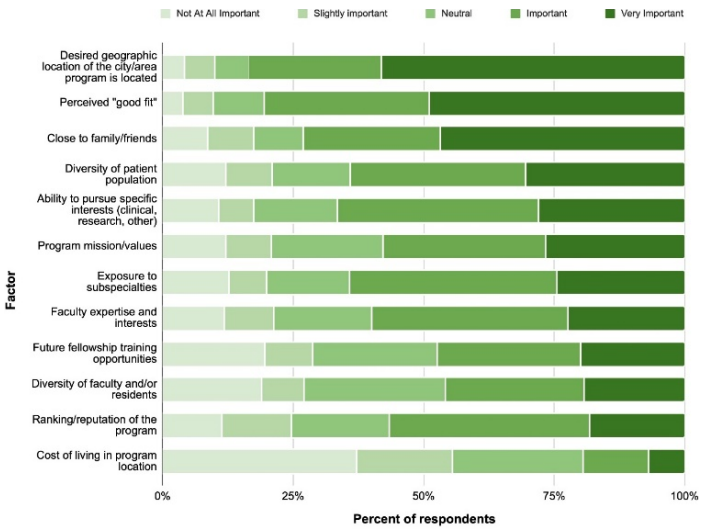

Figure 1. *Importance of factors considered by applicant respondents in determining where they sent program signals.*

applications. Overall, the majority of applicants (57%; 169/297) and PDs (75%; 52/69) were in favor of continued use of program signaling.

Program signaling is intended to allow an applicant to express genuine interest in a residency program [1]. We found that PDs believe signaling their program increases the likelihood of an interview invite and most applicants received an interview offer from at least one of three programs that they signaled, consistent with findings from the otolaryngology [2-4] and urology match [5-7]. Applicants utilized signals to express interest in dermatology programs, prioritizing desired geographic location, proximity to family/friends, and perceived *good fit* when sending signals, similar to findings on the urology match [8]. There have been concerns that program signaling results in highly competitive applicants using signals at *less competitive* programs to ensure a *safety* option, leading some programs to receive signals from applicants who are only modestly interested in their program [9]. We found a small number of applicants only sent their signals to programs they considered to be *safe*, though it is likely difficult for applicants to identify *safe* programs based on the volatility of the dermatology match.

Although results suggest that signaling increases likelihood of receiving an interview, the majority of PDs stated less than half of their matched class had sent a signal, suggesting that signaling may not directly translate to increased likelihood of matching. However, programs were instructed to utilize signaling when allocating interview invitations but not when forming a rank list. Furthermore, applicants were advised not to signal their home program or away rotation programs, where applicants have historically largely matched

Table 1. *Responses from program directors and applicants on how program signals were used in the residency application process.*

Responses from applicants	% (N)
Applicant strategies when selecting programs to signal	
True top program(s)	65% (191)
Mix of "reach" and "safe" programs	30% (89)
Only program(s) in sync with geographic preferences	30% (88)
Only program(s) considered to be "safe"	10% (29)
Program(s) that did not overlap with regions signaled in geographic preferences	8% (24)
Other	4% (11)
Percentage of signaled programs that extended interview invitation	
0	28% (81)
33%	35% (99)
66%	20% (58)
100%	15% (43)
Responses from program directors	**% (N*)**
How are program signals used?	
Holistic review	69% (43)
Used to "tie break"	16% (10)
Other	10% (6)
Did program signaling increase likelihood of applicants receiving an interview invite?	
Significantly more likely	35% (22)
Slightly more likely	48% (30)
Did not increase likelihood	16% (10)
Percentage of applicants who signaled and received an interview invite	
None	0% (0)
<25%	34% (21)
25-49%	23% (14)
50-75%	32% (20)
>75%	11% (7)
Percentage of matched applicants who sent signal to matched program	
None	28% (18)
<25%	27% (17)
25-49%	23% (15)
50-75%	14% (9)
>75%	8% (5)

*Four programs that did not use program signals in their application screening process were excluded from this analysis.

[10]. Further research into signaling will be needed to better understand the effect of the signaling on the likelihood of matching.

There were a number of limitations to this study. First, this study was based on self-reported survey results. Furthermore, because these surveys were completed after the 2022 Match, our limited response rate may have been affected by selection bias. Though a majority of PDs responded to our survey, these responses may not be representative of PDs from other programs who did not participate. Furthermore, the results are based on signaling from the 2021-2022 application cycle and these results may not reflect the applicants or outcomes observed in the 2023-2024 application cycle.

Overall, our study suggests that signaling may increase the likelihood of an applicant receiving an interview invitation, though residency programs may value program signals differently. Program signaling is intended to allow applicants to highlight their interest in a residency program, as programs and applicants alike have faced difficulties in discerning genuine interest. With the recent change from three program signals to three gold and 25 silver in the 2023-2024 dermatology residency application cycle [11], the influence of program signals on interview and match outcomes may shift again. We encourage transparency and consistency in how programs treat signals in the dermatology match as the process continues to evolve.

Potential conflicts of interest

M. Lee is an employee of AAMC. The remaining authors declare no conflicts of interest.

References

1. Association of American Medical Colleges. 2024 ERAS® Application Season Program Signaling - ERAS Connection - AAMC. https://connect.aamc.org/resourcelibraries/2024erasprogramsignaling. Accessed on May 25, 2023.
2. Chang CWD, Thorne MC, Malekzadeh S, Pletcher SD. Two-Year Interview and Match Outcomes of Otolaryngology Preference Signaling. *Otolaryngol Neck Surg*. 2023;168:377-383. [PMID: 36040808].
3. Benjamin WJ, Lenze NR, Yalamanchi P, et al. Impact of applicant and program factors on preference signaling outcomes in otolaryngology. *Laryngoscope Investig Otolaryngol*. 2023;8:401-408. [PMID: 37090886].
4. Pletcher SD, Chang CWD, Thorne MC, Malekzadeh S. The Otolaryngology Residency Program Preference Signaling Experience. *Acad Med*. 2022;97:664-668. [PMID: 34618735].
5. Leopold Z, Rajagopalan A, Mikhail M, et al. Preference Signaling in the 2022 Urology Residency Match - The Applicant Perspective. *Urology*. 2022;170:33-37. [PMID: 36195167].
6. Traxel E, Richstone L, Brown J, et al. Preference Signaling Pilot in the Urology Match: Outcomes and Perceptions. *Urology*. 2022;170:27-32. [PMID: 36115432].
7. Grauer R, Ranti D, Greene K, et al. Characterization of Applicant Preference Signals, Invitations for Interviews, and Inclusion on Match Lists for Residency Positions in Urology. *JAMA Netw Open*. 2023;6. [PMID: 36662528]. Erratum in: *JAMA Netw Open*. 2023;6:e233305. [PMID: 36662528].
8. Kim JK, Morrison B, Bylund J, Rasper A, Dropkin BM. Influencing Factors of Preference Signaling in the 2022 Urology Residency Match. *Urology*. 2023;175:35-41. [PMID: 36805414].
9. Gangal A, Blalock TW. A perfect match: Pros and cons of preference signaling in dermatology. *J Am Acad Dermatol*. 2021;84:1504-1505. [PMID: 33359788].
10. Clarke JT, Miller JJ, Sceppa J, Goldsmith LA, Long E. Success in the Dermatology Resident Match in 2003: Perceptions and Importance of Home Institutions and Away Rotations. *Arch Dermatol*. 2006;142:927-947. [PMID: 16847216].
11. Association of American Medical Colleges. The MyERAS® Application and Program Signaling for 2023-24. Students & Residents. https://students-residents.aamc.org/applying-residencies-eras/myeras-application-and-program-signaling-2023-24. Accessed on May 25, 2023.