Family Medicine

Reflections on Family Medicine's First Year of Program Signals and Other New ERAS Features

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ABSTRACT

Background and Objectives: The 2023–2024 Electronic Residency Application Services® (ERAS®) cycle introduced program signals, geographic signals, and a revised experiences section to family medicine residency applications. This study explored how family medicine applicants, program directors (PDs), and medical student faculty advisors perceived the value of these new ERAS features.

Methods: We conducted semistructured interviews with 2024 National Resident Matching Program family medicine applicants, PDs, and advisors, all recruited through the American Academy of Family Physicians Student and Resident Initiatives program. Rapid qualitative analysis identified key themes from interviews.

Results: Of 145 individuals contacted, 10 applicants, 11 PDs, and 10 advisors participated. Three key themes emerged: (1) the need for clearer communication, transparency, and standardized guidance from ERAS and programs; (2) signals were most useful as a tiebreaker, while geographic preferences were perceived as too broad to be meaningful; and (3) applicants were concerned about potential inequities in the new features, particularly for international medical graduates and those with less access to informational resources. Despite initial uncertainty, participants viewed signals as a promising tool for refining the match process. However, they emphasized the need for further data to assess long-term effects on applicant behavior, program selection, and equity.

Conclusions: While new ERAS features were perceived favorably overall, applicants, PDs, and advisors would like to see increased clarity and consistency in communications and implementation to alleviate applicant stress and ensure equitable and informed decision-making. Future research should explore signal distribution and interview conversion rates to further optimize the process.

INTRODUCTION

The Electronic Residency Application Service® (ERAS®) streamlines the US residency application process for both US and international medical school applicants.[1,2] To address the rising volume of applications, ERAS introduced new features: program signals, geographic preferences, and a revised experiences section.[3,4] Program signals let applicants express interest in specific programs,[5] while geographic preferences highlight desired locations. The revised experiences section allows applicants to classify their experiences and includes an optional section for describing significant obstacles.

Program signals were first used in otolaryngology during the 2020–2021 application cycle.[6] A 2021 survey of family medicine program directors (PDs) found support for these signals,[7] leading to their integration into the 2023–2024 ERAS application cycle along with geographic preferences and a revised experiences section.[8,9] Applicants could signal up to five family medicine programs, indicate up to three geographical preferences, and

select up to 10 significant experiences, describing three in detail.[8]

Most medical specialties have adopted program signals.[3,10-13] Emerging research suggests that signals may benefit both applicants and programs by improving interview opportunities, aiding selection, and offering equity for financially disadvantaged applicants and smaller, less competitive programs.[6,14,15] However, attitudes about the usefulness of the three features remain mixed.[16,17] Hence, in this study, we examined how family medicine applicants, PDs, and advisors navigated the first year of these new ERAS features, exploring their engagement, perceptions, and the broader implications for residency selection and equity in family medicine.

METHODS

We conducted semistructured interviews with three groups: family medicine applicants, PDs, and advisors from the National Resident Matching Program, 2024 Main Residency Match®. The American Academy of Family Physicians (AAFP) Institutional Review Board approved this study as exempt, category 2.

Recruitment

Because of its national reach, we recruited participants randomly through AAFP's Family Medicine Interest Group Network[18] and residency directory.[19] We also used snowball sampling[20] to reach potential participants. Overall, 145 individuals were contacted who could provide insights on the new ERAS features. Inclusion criteria for applicants were application to a family medicine residency via ERAS in the 2024 Match and use of signals and/or other new ERAS features in the application process. PDs were included if they oversaw a family medicine residency program and had awareness of the new ERAS features. Advisors qualified if they worked in a US medical school and provided residency selection guidance to applicants in family medicine. Potential interview participants were contacted via email with an initial outreach and then two follow-up attempts.

Data Collection

Interviews took place from May 2024 through August 2024 via WebEx (Cisco) or Microsoft Teams and were recorded. These lasted no more than 54 minutes, averaging approximately 34 minutes. After the interviewee provided verbal consent, a short questionnaire (containing 11, 12, or 15 questions depending on the group) was used to collect demographic information (Table 1). A PhD-level medical anthropologist (M.F.) designed the semistructured interview guides, which were reviewed internally by the research team—a master's-level public health researcher (A.S.) with qualitative experience and a family physician (D.R.). A separate guide was designed for each participant group. M.F. and A.S. conducted the interviews. Participants received $50 remuneration for their time.

Data Analysis

We chose rapid qualitative analysis to quickly generate insights to inform future matching.[21] This iterative rapid technique leveraged a structured form summarizing interview data that fed into one of three matrices.[22,23] M.F. constructed the summary forms, and these were tested by the research team. The two interviewers each filled out summary forms by reading transcripts or listening to interviews independently. They then reviewed each other's completed form and resolved any inconsistencies. M.F. constructed the matrices; rows consisted of interview encounters, while columns represented interview domains taken from the interview guide. Then the data from the forms were placed in the matrices' cells. When transposing the data from the summary forms into the matrices, the data were distilled into more concise language. M.F., A.S., and D.R. reviewed the matrices and used inductive analysis to identify preliminary themes by group. These researchers, plus another PhD-level medical anthropologist (A.K.), reviewed preliminary themes, discussed discrepancies, and agreed on finalized themes.

RESULTS

Participant Characteristics

Among 145 individuals contacted, 31 participated in the study, including 10 applicants, 11 PDs, and 10 advisors (Table 1). Nine of the 10 applicants applied to only one specialty (family medicine). Table 2 presents a breakdown of the median number of programs that applicants applied to and interview offers received. Five applicants matched with the program they signaled, one did not, and four were unsure or did not disclose their results. Of the 11 PDs, eight officially held the title of residency PD, whereas the remaining three were the main individuals who reviewed and/or approved residency applications. For the purposes of this paper, all three were included as PDs. PDs were in their position for a median of 4 years. All the PDs' residency programs were community-based; five were run directly by a medical school; five were only affiliated (ie, not directly managed by a medical school, but supported via academic or other support). The latter included one teaching health center,[24] one Area Health Education Centers-sponsored program),[25] and one county hospital. All 10 advisors held more than one position at their school and served in their primary role for a median of 7 years. Sixteen of the 20 applicants and advisors interviewed were from unique medical schools, and all 11 of the PDs were from unique residency programs that were not affiliated with any of the aforementioned medical schools. Overall, most participants were MDs, not international medical graduates (IMGs), female, and/or Caucasian/White. Except for the four IMGs who advocated more on behalf of other IMGs, we found no significant trends in the demographic data that could explain certain attitudes or behaviors.

TABLE 1. Demographics of Participants Interviewed, N = 31

Category	Number of applicants (*N* = 10)	Number of PDs** (*N* = 11)	Number of advisors (*N* = 10)	Number by category (*N* = 31)
Degree				
MD*	6	9	10	25
DO	4	1	0	5
No medical degree	0	1	0	1
IMG background (self-reported and from online biographies)				
Yes (IMG)	1	0	3	4
No (not IMG)	9	11	7	27
Region				
South	2	3	2	7
Northeast	3	2	4	9
West	1	3	1	5
Midwest	4	3	3	10
Gender				
Male	2	4	4	10
Female	7	7	6	20
Other	0	0	0	0
Prefer not to answer	1	0	0	1
Race				
Caucasian/ White	5	11	5	21
Asian	3	0	5	8
Other	1	0	0	1
Prefer not to answer	1	0	0	1

*Includes MBSS international degree equivalent of MD in the United States
**Includes all those who are in the main role of reviewing applications (8 PDs, 1 GME program coordinator, 1 assistant PD, and 1 coassociate PD)
Abbreviations: GME, graduate medical education; IMG, international medical graduate; MBSS, bachelor of medicine, bachelor of surgery; PD, program director

TABLE 2. Median Number of Residency Programs That Applicants Applied to and Interview Offers Received

Medians by applicant degree type	Number of residency programs applied to	Number of interview offers received	Number of interviews from programs signaled
Medians for DO (*n* = 4)	47.5	17	4.5
Medians for MD (*n* = 6)	23	15	4.5

Note: All applicants (N = 10) used the maximum number of signals permitted (5).

Emerging Themes From Interviews

Overall, three key themes emerged in our study: (1) need for clearer communication, transparency, and standardized

guidance from ERAS and programs; (2) program signals were primarily used as a tiebreaker, while geographic preferences were perceived as too broad to be meaningful; and (3) applicant concerns about equity, particularly access to information and signal distribution. While each participant group had varied experiences and perceptions regarding the new and revised ERAS features, we focused on the overarching attitudes.

Need for Clearer Communication, Transparency, and Standardized Guidance From ERAS and Programs

Applicants, PDs, and advisors noted that the lack of clear and standardized guidance regarding the new and revised ERAS features resulted in varying interpretations, which contributed to confusion among all groups. Generally, applicants and advisors said that communication from medical schools and residency programs was infrequent or inconsistent, requiring proactive efforts to seek information about the new features. They gathered information from professional organizations, such as the Society of Teachers of Family Medicine, Association of American Medical Colleges, and AAFP, supplemented by social media and peer discussion.

All participants found that understanding and strategizing the optimal use of the new features added complexity to the match process. The limited availability of data (given the novelty of signals in family medicine) and minimal communication from programs about their intended use of the features made providing new advice difficult for advisors, which applicants described as stressful. From the PD perspective, this lack of communication was mainly attributed to not knowing how to best utilize signals. However, concerns about maintaining a competitive edge also stopped PDs from being transparent, as one stated, "We can certainly spell out [how we use signals]. However, that also explains to programs with which we're competing our strategy for reviewing applications." See Table 3 for additional quotes. As a result, both PDs and advisors defaulted to established strategies: PDs conducted holistic application reviews, while advisors suggested that applicants focus preferences geographically and compile a prioritized program list.

We found consensus on the need for standardized processes and clearer communication from ERAS and residency programs. Participants suggested improved, equitable communication from residencies, noting that financial barriers to attending conferences or away rotations limit access to key information. Applicants also called for greater consistency and transparency from advisors, including the use of town halls and individual meetings to support decision-making. Advisors shared this preference for better communication, with one advisor noting,

> I would love to see continued effort to communicate [signaling and how it's being used by programs] across UME [undergraduate medical education] to GME [graduate medical

TABLE 3. Quotes From Participants Supporting Theme 1: Need for Clearer Communication, Transparency, and Standardized Guidance From ERAS and Programs

Participant type	Question prompt	Example comment
Applicant	What is your overall assessment of signals and geographic preferences?	"I think there should be more transparency and more honesty of what the function of a signal is for a program. And maybe that's something that . . . somebody should kind of give programs like, 'Hey, if you're going to use signals, this is a list of things you need to consider,' like standardize it. And this is something you absolutely have to be transparent about . . . my life, the next 3 years of my life, that name that's going to be on my residency could be . . . completely different. So, I really think that there should be more standardization to it."
Program director	What strategies could be used to help residency programs communicate their approach to or use of signals (eg, signals, geographic preferences, and revised experiences/impactful experiences)?	"I would love [for] NRMP or the folks who run ERAS . . . to have an information guide like, 'We recommend that all programs provide on their website XYZ' and a chart like, 'Fill out the chart and put it on your [program] webpage.' Because I think that's the biggest struggle I think for incoming students is they just don't know what we do. And we're so good at saying how great we are that there's no way to distinguish one program from another except by geography."
Advisor	Last question. do you have any other last thoughts, any further suggestions or recommendations [on how to enhance the ERAS features for family medicine]?	"I would love to see continued sort of effort to communicate [signaling and how it's being used by programs] across UME to GME in an effort to really give our applicants the best advice we can. . . . Ultimately, I think the clarity of expectations and the continued sort of effort toward communication across specialty societies and you know, organized medicine, is going to be really helpful."

Abbreviations: ERAS, Electronic Residency Application Services; GME, graduate medical education; NRMP, National Resident Matching Program; UME, undergraduate medical education

education] in an effort to really give our applicants the best advice we can.

Additional recommendations included updating program websites, hosting webinars, engaging through social media, and facilitating in-person events. In-person interactions at career events, such as the AAFP National Conference (now renamed FUTURE),[26] were identified as particularly beneficial. Programs encouraged applicants to be transparent in their use of signals; some PDs experienced confusion when applicants did not clearly articulate their reasons for signaling. Advisors and PDs also advised certain applicants that signaling home institutions might not be necessary if prior relationships, such as completed rotations, existed.

Ultimately, participants acknowledged that adapting to the new ERAS features in family medicine would take time and warned that making significant changes too quickly could exacerbate confusion and complexity. The preference instead was for increased transparency and communication among all parties to alleviate stress associated with the application process.

Program Signals Were Primarily Used as a Tiebreaker, While Geographic Preferences Were Perceived as Too Broad to Be Meaningful

Overall, we identified an apparent disconnect between applicants' and advisors' views on the roles of signals versus PDs' views. Applicants and advisors generally viewed signals as helpful by providing more structure, control, and voice for applicants to express their interests, whereas PDs were less sure of its benefits. While signals did not seem to impact the number of applications submitted overall according to applicants, they acknowledged that signals required them to self-reflect and begin their program rank list early in the application process. Applicants also perceived a sense of reassurance from believing that signals afforded them a second look by programs that might have otherwise ignored them; some PDs confirmed this perception, but clarified, however, that this decision was driven more by the novelty of signals rather than a practice they intended to continue. One applicant stated, "I don't think that all signals get interviewed, but I do think that all signals, from my perspective, get looked at maybe earlier rather than later and are prioritized." See Table 4 for more quotes. Meanwhile, PDs approached signals more cautiously in their first year of use. Most relied on holistic application reviews, using signals only to prioritize or break ties between similar applications. Signals were not considered after this stage to avoid biases in interviews and beyond, leaving PDs uncertain how many matched applicants had signaled them.

All participants were mostly pleased with the revised experiences section. From the PD perspective, the reduction to 10 experiences meant more concise applications and an easier review; on the applicant side, the change reduced the application burden. Suggestions for enhancements were mixed. Some applicants wanted more character space for the impactful experiences section, while some advisors wanted more options for applicants to choose from to describe their experiences. All participants agreed that the hobbies and interests section should be added back, because it helped provide a sense of levity and clarity to the character of the applicant.

We also found consensus regarding geographic preferences, which all believed to be too broad and/or unreflective of how applicants choose programs. Designating a

TABLE 4. Quotes From Participants Supporting Theme 2: Program Signals Were Primarily Used as a Tiebreaker, While Geographic Preferences Were Perceived as Too Broad to Be Meaningful

Participant type	Question prompt	Example comment
Applicant	Programs use a variety of metrics to determine who to interview (eg, transcripts, USMLE scores, letters of recommendation, medical student performance evaluations). How much weight do you think signals had in deciding who to interview?	"I don't think that all signals get interviewed, but I do think that all signals, from my perspective, get looked at maybe earlier rather than later and are prioritized, but not necessarily, you know, given the access."
Program director	Which ERAS features did your program use in making interview selection decisions? Was it program signals, geographic preferences, and/or the revised experiences section (including impactful experiences)?	"If [applicants] signaled us [program], then they went in that first wave of review. . . . If we still have interview slots available, then I look at what's the next scoring bucket. . . . If they signaled us, then that would give them a plus up to get pushed into that 'yes, we should interview them because they're interested in us.' Geographic signals really didn't help us a ton. I will throw them in that same bucket of 'Gosh, I'm trying to decide between these two applicants. Neither one signaled our program. Their applications are fairly similar. Oh, this person actually wants to be in this area. So, ok, sure.' That's the deciding vote."
Advisor	What is your overall assessment of signals, geographic preferences, and the revised experiences section?	"I do believe that [signals] can give like objective and more equal opportunities for all medical students applying to family medicine, because medical schools, I know, [are] more privileged to have strong connections with certain [residency] programs. . . . And also like international medical graduates or other [applicants from] Caribbean schools, when they sent out [their] applications that sometimes the programs may screen [theirs] out. . . . But when [programs] receive signaling, they may take a look at the applications."

Abbreviations: ERAS, Electronic Residency Application Services; USMLE, United States Medical Licensing Examination

hometown was appreciated, but applicants wanted a chance to explain their selections. For example, some applicants had designated several hometowns because of family connections, while others were concerned about couples matching. Applicants and advisors were particularly concerned about being penalized if no locations were selected, especially when the applicants valued *what* training they received over *where* they received it.

Applicant Concerns About Equity, Particularly Access to Information and Signal Distribution

Though most participants, with the limited data available to them, viewed the new ERAS features as generally fair, several concerns were raised regarding potential inequities. One common critique focused on disseminating new feature information. For example, all applicants who attended the AAFP National Conference greatly benefited from the opportunity, where they learned about the features during a special session. This opportunity potentially exacerbated extant inequities, because those without the financial means or awareness of the event were unable to access the information. In particular, IMGs may experience further disadvantage. One advisor stated,

> I think it would be good to have more standardized resources nationally . . . like for international students . . . to reduce disparity of just access to understanding the system [of signals].

Another concern centered on applicants having a "free" signal from their medical school where they completed a past rotation in a residency or other program. While some advisors and PDs encouraged applicants not to signal these programs, this advice caused frustration among applicants. Additionally, PDs were concerned about signals being permitted for more than one specialty. Besides potentially diluting the power of signals, using signals in multiple specialties could have "stolen" interview spots from family medicine–only applicants, making the process not as equitable for programs struggling to recruit. Finally, we identified a concern that applicants could be penalized if no geographic preferences were selected. This concern was especially relevant to an IMG applicant who did not have an affiliation with a US medical school or a location preference, which could have unfairly disadvantaged them if programs heavily weighted location over merit Table 5.

DISCUSSION

The introduction of program signals, geographic preferences, and a revised experiences section in the 2023–2024 ERAS cycle represents a fundamental shift in how applicants express interest and how programs prioritize interview invitations. Our study highlighted that while signals were generally viewed as a useful tool by all participants, considerable uncertainty remained regarding their implementation and impact. Applicants, PDs, and advisors uniformly identified the need for clearer communication, greater transparency, and standardized guidance on the use of signals and geographic preferences in selection decisions. Furthermore,

TABLE 5. Quotes From Participants Supporting Theme 3: Applicant Concerns About Equity, Particularly Access to Information and Signal Distribution

Participant type	Question prompt	Example comment
Applicant	What strategies could be used to help residency programs communicate their approach to or use of signals, geographic preferences, and the experiences section?	"Even if the AAFP communicates to schools, like there are so many schools and so many people applying to family medicine that, I don't know, like it would need to be equitable the way that this information [on signals] is shared for it to actually be meaningful. . . . And so maybe, if like someone is applying to family medicine on ERAS, there's like a little communication bubble that pops up . . . and gave just like some general tips on [signaling]."
Program director	Did signals ultimately help in deciding who to interview? Or was it just another factor that your residency program considered?	"In the future, if people can only signal programs in one specialty, we would put a lot more weight into it actually in terms of who we're going to interview for sure and potentially who we're going to rank. But right now, as it stands, if you can signal people in multiple specialties, I don't think [signals is] as valuable as it could be."
Advisor	Last question. Do you have any other last thoughts, any further suggestions or recommendations [on how to enhance the ERAS features for family medicine]?	"I think it would be good to have more standardized resources nationally . . . like for international students . . . to reduce disparity of just access to understanding the [signaling] system. . . . And like take some of the weight off of each individual advisor. So everybody has the same advice and receives [the same information]."

Abbreviations: AAFP, American Academy of Family Physicians; ERAS, Electronic Residency Application Services

concerns about potential inequities, particularly for IMGs and applicants with limited access to informational resources, underscore the importance of refining these features to ensure fairness in the match process. Hence, understanding the pros and cons of these features is critical to enhancing the match process and ultimately leading to better alignment between residents and programs. This alignment is particularly important for building and retaining a robust primary care workforce, because where residents train strongly impacts where they will eventually practice.[27]

Most of our study participants generally held an optimistic perspective on the power of signals, consistent with other studies with similar findings, whether focused solely on family medicine residency programs[2,28] or other specialties.[29] Other studies found that signals had the potential to alleviate application burden on PDs while simultaneously giving applicants a stronger voice and mitigating disparities. While participants expressed minor differences regarding the ideal number of signals, most agreed that family medicine should cap signals at 10 or avoid tiered formats used by other specialties,[11–13,30] as those approaches may complicate rankings and increase anxiety for all parties.

From an equity perspective, residency applicants from historically underrepresented minority groups are more likely to receive interview invitations from programs they signal.[14] This provides a financially equitable, formal way for applicants to express interest, at no additional cost compared to historical strategies such as completing auditions/away rotations or attending national conferences.

This study builds on past research regarding the timing of signals, forcing applicants to think earlier and more critically about their applications. This, in turn, could result in more thoughtful applications and better aligned matches. Although our small study sample of PDs did not find geographic preferences to be wholly enlightening, other

family medicine–specific studies found them to be a key factor for PDs to interview or rank.[2,28]

All participants raised three key elements that would greatly benefit the ERAS features and the match process overall: the need for consistent communication, honest transparency, and increased standardization. Confusion and frustration around the lack of transparency and guidance regarding signals are not new or specific to family medicine.[6,30] Nor is the call to standardize processes, such as what information programs must provide to applicants.[31] More transparency and consistent communication from programs and standards about their ERAS features could alleviate stress on applicants and advisors. Additionally, greater transparency and consistent communication could create a more equitable field, especially for applicants who cannot afford to apply to a plethora of programs.[30] Creating a national database that all programs must keep maintained also could greatly help applicants and advisors differentiate between similar programs, thus potentially reducing the need for the Supplemental Offer and Acceptance Program (SOAP) and leading to a better match. A national database also might be beneficial if ERAS can limit signals to one specialty only, to create a more equitable application process for applicants and avoid frustration among PDs searching for those most interested in family medicine.

A limitation of our study included the timing of the interviews, as all applicants were interviewed after they had been accepted into their programs. Furthermore, the goal of qualitative research is not generalizability, but transferability and contextualization. This case-based approach can provide the foundation and direction for further work.

Future consideration includes looking into the distribution and impact of signal concentration within family medicine. Participants acknowledged that signals may not carry the same weight for popular programs as they would for less

popular, more rural programs. Hence, understanding the impact of how signals were distributed can further improve the match process for family medicine, as it has for other specialties.[32] Another avenue for exploration is to examine the signal to interview invitation conversion rate to see the extent of signals' ability to garner interviews. Further research can provide more insight into the power of signals and support its utilization.

CONCLUSIONS

Family medicine applicants, advisors, and PDs were cautiously optimistic about the new and revised ERAS features. Participants would not recommend major changes until more data are gathered but suggested the need for more communication, transparency, and standardization of processes to create a more equitable application process. Future studies should examine the distribution and impact of signals, as well as the signal to interview invitation conversion rate.

CONFLICTS OF INTEREST

PRESENTATIONS

This study was presented as a poster at the following meetings: North American Primary Care Research Group Annual Meeting, November 2024; Society of Teachers of Family Medicine Annual Spring Conference, May 2025; and MedStar Health–Georgetown University Research & Education Symposium, May 2025.

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