

ORIGINAL CONTRIBUTION

The Summer Match: A qualitative study exploring a two-stage residency match option

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Abstract

Background: The number of residency applications submitted by medical students rises annually, resulting in increased work and costs for residency programs and applicants, particularly in emergency medicine. We propose a solution to this problem: an optional, two-stage Match with a “summer match” stage, in which applicants can submit a limited number of applications early. This would be conducted similarly to the early decision process for college admissions. The study objectives were to explore stakeholder opinions on the feasibility of a summer match and to identify the ideal logistic parameters to operationalize this proposal.

Methods: We used exploratory qualitative methodology following a constructivist paradigm to develop an understanding of the potential impact of a summer match. We interviewed 34 key stakeholders in the U.S. residency application process identified through purposive sampling including educational administrators (program directors, designated institutional officials, medical school deans) and trainees (students, residents). We coded and thematically analyzed interview data in two stages using an inductive approach.

Results: We identified six themes from the participant interviews that broadly reflected issues of the residency application process, value, and equity. These themes included disrupting the status quo, logistic concerns, match strategy, differential benefits, unintended consequences, and return on investment. Most study participants supported the summer match concept, with medical students and residents most in favor. We developed a theoretical summer match protocol based on these findings.

Conclusions: A summer match may reduce the burdens of increasing residency applications and associated costs. Pilot testing is necessary to confirm this hypothesis and determine the impact of the proposed summer match protocol. Unintended consequences must be considered carefully during implementation.

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INTRODUCTION

The National Resident Matching Program (NRMP) Main Residency Match (Match) has expanded in scope in recent years, as the number of applications submitted, and interviews completed per student, rose dramatically across all specialties.¹⁻⁵ In 2010, U.S. senior medical students submitted an average of 37.2 applications each, while by 2020 that number increased linearly to 54.9 (an 87% increase).^{4,5} In emergency medicine (EM), the increase since 2010 is even more dramatic, at 97%.^{4,5} The continued rise in applications burdens both residency programs and applicants and, importantly, without any clear benefit to applicants in their Match outcome.⁶ In this environment, there is a growing financial imperative for both applicants and programs to refine the residency application process, with clear policy implications for the NRMP and partner organizations.

Several Match reforms have been proposed, although none have reached pilot testing or implementation. The most commonly proposed change is limitations on students at either the application⁷ or interview stage.⁸ Others include applicant preference signaling^{9,10} or ending the Match altogether.^{11,12} Match reform using an optional, two-stage process, referred to as the Early Result Acceptance Program (ERAP), was proposed by Hammoud et al. in 2020.¹³ The first stage would permit students to submit a maximum of five applications and limit programs to offer no more than 50% of their entry-level positions. Students who did not obtain a position in the first stage would enter the Main Residency Match. They propose either that interviews would have to be conducted early or that the main Match application season would have to be shortened, resulting in the same total application season length, but with two matches instead of one. ERAP is one of several potential Match reforms under investigation by educational leaders in obstetrics and gynecology, with funding by the American Medical Association Reimagining Residency Program. The logistics and acceptability of these proposals have not yet been explored.

In this study, we investigated stakeholder perspectives regarding a two-stage match process similar to ERAP and the early decision programs used by some U.S. colleges and universities. In our model, applicants would have the option to participate in a "summer match" prior to the opening of the traditional Match. Unlike ERAP, we sought to investigate key parameters for this protocol rather than propose them a priori. The objectives of this study were to: (1) explore various stakeholder perspectives regarding the feasibility, value, and consequences of an optional summer match and (2) identify the ideal logistic parameters under which this approach could be operationalized.

METHODS

Study design and setting

We employed exploratory qualitative research methodology following a constructivist paradigm. To best understand the perceived value and possible logistics of a summer match, we sought a diverse

sample of participants and perspectives from stakeholders in the residency application process at university-based, county-sponsored, and community hospital-based training programs. We drew participants from all geographic areas of the United States and limited our scope to individuals with a faculty appointment at a medical school accredited by the Liaison Committee on Medical Education.

Sampling strategy and data collection

We recruited participants in two distinct stakeholder groups: educational administrators (residency program directors [PDs], designated institutional officials [DIOs], medical school deans) and trainees (medical students, resident physicians). Our sampling was both purposive¹⁴ and convenience, as we recruited from a broad range of specialties and training environments using contacts professionally known to the authors. We contacted educational administrators by direct email and trainees via email distribution lists available to the study investigators. We also used Twitter to access a broader range of learners.

We utilized semistructured interviews in which we encouraged participants to "think aloud" in all of their responses to generate rich data.¹⁵ We generated two similar interview guides (one for learners and one for administrators) to contain two types of questions: *value* and *operationalization*. For operationalization questions, we used the major components of the current residency application process as a conceptual framework. To address opinions on value we used questions designed to elicit both negative and positive opinions. We included a description outlining the summer match idea and the problem it addresses at the start of each interview to provide context for participants. We made some minor changes to the guides within the first six interviews. A full description of this process and the interview guides are available in the Data Supplement S1 (available as supporting information in the online version of this paper, which is available at <http://onlinelibrary.wiley.com/doi/10.1002/aet2.10616/full>).

We completed individual interviews averaging 30 minutes each between July 24 and October 25, 2019, and completed data analysis in 2020. We provided participants with project goals, informed consent, and preparatory materials at least 24 hours prior to their interviews. We continued sampling efforts in parallel with ongoing interviews until no new information was elicited in interviews and we felt that we had reached saturation.

We recorded all interviews using Zoom in audio-only mode (Zoom Video Communications, Inc.) and transcribed the interviews using a professional transcription service, Rev.com. We deidentified and labeled transcripts with study identifiers prior to analysis.

Data analysis

We used Dedoose Version 8.3.20 (Dedoose, SocioCultural Research Associates, LLC) to facilitate coding and thematic analysis.^{16,17} Using

an inductive approach, all authors coded a subset of transcripts that included all stakeholder groups to generate the initial codebook. The lead author then coded all transcripts using this codebook. We followed the subcategorization method outlined by Kuckartz¹⁷ to increase the detail of coding, resulting in a revised codebook that was then applied to all transcripts by the lead author. We completed a thematic analysis by independently reviewing the codes and excerpts.^{14,16,17} We met weekly to iteratively discuss the codes, identify patterns in the data, and agree upon themes. Once we had completed this process, we explicitly searched for outliers and dissenting minorities among our data set to ensure we represented the spectrum of opinions. We highlighted these dissenting opinions in the results, when present.¹⁸

Study team, ethical concerns, and reflexivity

Only one author (M.D.) was aware of the individuals involved in the study to protect participant privacy. We kept faculty authors blinded to the identity and responses of participating trainees to decrease any risk of negative consequences to those participants. We deidentified all recordings prior to transcription and analysis, and we stored all data on approved, secure servers. Participation was voluntary and no incentive was provided.

The study team included an EM-bound third-year medical student (M.D.) who has not yet participated in the residency application process, as the lead investigator. Four investigators (M.G., J.B., L.H., L.R.) were previous or current residency EM PDs who participated in the residency application process, both as students and as faculty members. The final investigator (S.S.S.) was a nonclinician who has never participated in the residency application process but had both practical and research experience with medical school admissions. All of the study investigators had experience with qualitative research methods, and all were affiliated with departments of EM at their respective sites. We acknowledge the potential impact of experiences and opinions of our study investigators on data analysis in this constructivist paradigm. Accordingly, we intentionally ensured representation of trainees, and non-EM PDs, DIOs, and deans, and carried out a negative case analysis to challenge our assumptions. Furthermore, our study team included members with nonfavorable opinions regarding a possible summer match, whose opinions and perspectives also informed this analysis. We frequently met as a large group to conduct the analysis and these perspectives were brought into these discussions for elaboration and refinement and to promote openness and transparency. This project was approved by the Stanford School of Medicine Institutional Review Board, protocol number IRB-50841.

RESULTS

We interviewed 34 participants (22 educational administrators, 12 trainees) from 18 institutions and nine medical specialties. Our

final participants were all U.S. allopathic graduates or trainees, 55% female, from urban (74%) or suburban (26%) institutions throughout the country (Table 1). We identified six major themes from our stakeholder interviews: disrupting the status quo, logistic concerns, match strategy, differential benefits, unintended consequences, and return on investment (Table 2). These themes broadly reflected issues of relevance, equity, timing, and process. Most study participants supported the summer match concept, with medical students and residents most in favor. We developed a summer match proposal (Figure 1) from findings in our stakeholder interviews, which includes recommended logistic parameters for timeline, process, and application limits.

Disrupting the status quo

A fear of disrupting the status quo of the Match emerged repeatedly throughout the interviews. Many participants were apprehensive about changing the current residency application process, yet they shared a general consensus that the continued rise in residency application numbers is unsustainable. Participants mostly considered our questions about a summer match within the context of the existing process, without any suggestions for foundational changes to the Match.

For instance, participants were apprehensive about substantive changes to the Medical Student Performance Evaluation (MSPE) in a summer match, because “to create a MSPE before students have done any of their advanced rotations ... would not provide the information that programs should have in their application considerations.” This was despite considerable concerns among participants regarding the value of the MSPE:

“I’m not under the delusion that program directors actually read all the [MSPEs] that I spend my summers writing. But there’s a lot of information there and I think at their peril they may ignore those” (dean for student affairs).

Additionally, several participants acknowledged that the pressure and costs that stem from away rotations are detrimental: “It’s increasingly bizarre to me why [away rotations] are required. It puts an incredible burden on students to try to set those up [and] do them in a timely way” (student advising dean). Despite this, participants were concerned that a summer match would prevent students from completing important away rotations, and “in the absence of a totally reliable MSPE, and ... transcripts not being helpful because they’re all going to pass/fail, the specific performance on an away rotation is crucial” (PD).

Logistic concerns

Most participants felt that a summer match must impose limits on both the number of applications a student could submit and the number of positions a program could offer. Limiting students to “a very small number [of applications] would incentivize students to

	Educational administrators ^a			Trainees ^c		Total
	Residency PD	DIO	Medical School Dean	Medical student	Resident physician ^b	
Gender						
Male	4	2	2	3	4	15
Female	8	2	4	5	0	19
Institution						
University	8	3	6	8	4	29
Community	3	1	0	0	0	4
County	1	0	0	0	0	1
Location						
West Coast	1	0	4	5	2	12
Midwest	6	2	0	1	2	11
East Coast	5	2	2	2	0	11
Sampling						
Contacted (% success)	18 (67%)	6 (67%)	7 (86%)	14 (57%)	6 (67%)	51
Interviewed (% of total)	12 (35%)	4 (11%)	6 (18%)	8 (24%)	4 (12%)	34

TABLE 1 Participant demographics and sample breakdown

Note: All participants are allopathic medical graduates or students.

Abbreviations: DIO, designated institutional official; PD, program director.

^aSpecialties represented: EM, endocrinology, internal medicine, obstetrics and gynecology, pathology, pediatric neurology, pediatrics, psychiatry, radiology.

^bSpecialties represented: EM, pediatrics.

^cTrainees contacted initially via email mailing lists/Twitter; total contacted reflects initial hits from those attempts.

only enter the initial match if they have very strong feelings about a few programs" (medical student).

Discussions of program limits in a summer match led to opposing viewpoints. "Why wouldn't you make [available positions] 100%? ... because I would love to not have to go through recruiting if I could get an amazing group of people early" (PD). For those who favored limiting the number of program positions offered, most feared that without limits one would "create a frenzy to get in early" (Dean for Medical Education). One student warned, "[You] wouldn't want to create a situation where people feel like they can only get into the program if they do the early match, because then you will be reaching the point where everybody will apply early" (medical student).

Participants identified the timeline for a summer match as a key implementation variable. Three dominant options were proposed: (1) summer match in the summer, sequenced before the current Match, to "get started and completed in time for students to then meet the general match opening ... because it wouldn't be fair to a student to come into the general pool later than others" (student advising dean); (2) summer match overlapping the opening of the Match in the fall, with successful students withdrawing from the Match; and (3) summer match in the fall with a delayed start to the Match later in the year, because "the current ERAS [Electronic Residency Application System] process ... could be shifted later." "Move ... the interview

season into January, February, March and [the summer match] would occur in the fall" (PD).

Match strategy

Many participants believed there would be less available information about students in a summer match. This would inherently change expectations for a "complete" application. As a result, students and programs would need to develop new strategies to optimize their results in a summer match. As one PD described, "we rely very heavily on Standardized Letters of Evaluation for determining who's a good candidate for our program ... [and] we're not going to be able to have [these letters] for students" (PD).

However, several participants believed that a summer match would provide a new, important piece of information to programs: participation would strongly signal applicant interest. Application limits "would completely change the landscape of residency applications. It would force applicants to be more intentional about where they want to be and where they want to apply" (PD).

In contrast, some participants cautioned that students would "rush themselves into some situation where they commit to a program that they don't really know anything about, and the program

TABLE 2 Themes

Theme	Brief description
Disrupting the status quo	Participants expressed apprehension about changing the current residency application process, particularly deemphasizing the MSPE and away rotations as less important components of the process,
Logistic concerns	Participants were divided about the ideal timing for a summer match. There was broad consensus on the need to limit both the number of summer match positions per program and the number of applications per student, to avoid encouraging all students to apply in the summer.
Match strategy	The existence of a summer match could change program and applicant strategy in the application process by reducing the number of programs students visit for interviews. Smaller application numbers may signal interest powerfully while reducing opportunities for students to evaluate additional programs.
Differential benefits	Applicants who would most likely benefit from the summer match are those with geographic limitations. The summer match may also disproportionately benefit traditionally “competitive” applicants.
Unintended consequences	Participants were concerned about several hypothetical unintended consequences of a summer match, including reflexive overapplying for students who fail to match in the summer, and possible disadvantages to less economically privileged students.
Return on investment	The summer match must successfully reduce total applications submitted or improve Match outcomes significantly enough to justify summertime work by PDs.

Abbreviations: MSPE, Medical Student Performance Evaluation; PD, program director.

doesn't really know anything about them. [It] can be a bad fit, and then they end up having a miserable time” (medical student). This warning was reiterated several times because students “gain a lot more perspective as they go and see different institutions. Students don't know what's going to be a good fit until they actually go and see something that resonates” (PD).

Differential benefits

Participants had divergent opinions on who might benefit from a summer match. Some believed everyone would benefit from a reduction in the application and interview burdens of the Match. More participants thought that a summer match “would really benefit people who have a clear idea of where they want to go for residency. For instance, people [whose] spouse has a job in a particular city, or people who want to be near family” (medical student). One PD recalled “a student from our institution, just absolutely phenomenal on every level. ... [the summer match] would have taken a lot of burden off of her. She ended up interviewing at other programs that she didn't need to do” (PD). Other participants believed that “programs will be more likely to keep people from their home school ... It may just be easier to say, ‘Let's invest a lot in our own students [who] we know are people we want to keep’” (DIO).

Most participants also believed that a summer match would selectively benefit competitive applicants such as “someone who does very well on tests and looks very good on paper” (student advising dean). Similarly, the summer match might “favor extremely competitive programs. Obviously the top five academic institutions might love that and everybody else might hate that” (PD).

Some participants were concerned that the percentage of positions filled by programs in the summer match would be used as a proxy for program quality. They noted that this might further reinforce applicant bias toward large, university programs traditionally perceived as prestigious. “Some programs are not going to fill in the summer match and that is going to be seen as a stigma” (PD).

Unintended consequences

Participants were concerned about possible unintended consequences of a summer match. First, the potential stigma for applicants who failed to Match in the summer: “What does it mean if somebody applies early in a field, they don't match, then they go into the general pool? ... Have they now hurt their chances?” (student advising dean).

Some participants feared that unmatched applicants in the summer would “be more anxious and want to apply to many [more] programs” (medical student). One cautioned of “a scenario where someone applies to five programs ... and doesn't match early decision. Instead of applying to 20 programs [in the Match], now they apply to 50 because now they're panicked” (DIO). One dean remarked “that although on the surface it sounds like it could really reduce stress, it will amp up the competition” (student advising dean).

Most participants believed the summer match would be so popular that the majority of students would apply, resulting in an overwhelming number of applications, thereby functionally moving the residency application season into the summer. “Why wouldn't everybody do it early?” questioned a dean who was concerned that if “a program is

Summer Match Protocol

Two-Stage Match: Summer Match + Main Match



STEP 1

•••
ERAS
Opens for
Stage 1



STEP 2

•••
Short
Interview
Cycle



STEP 3

•••
Summer
Match



STEP 4

•••
ERAS
Opens for
Stage 2



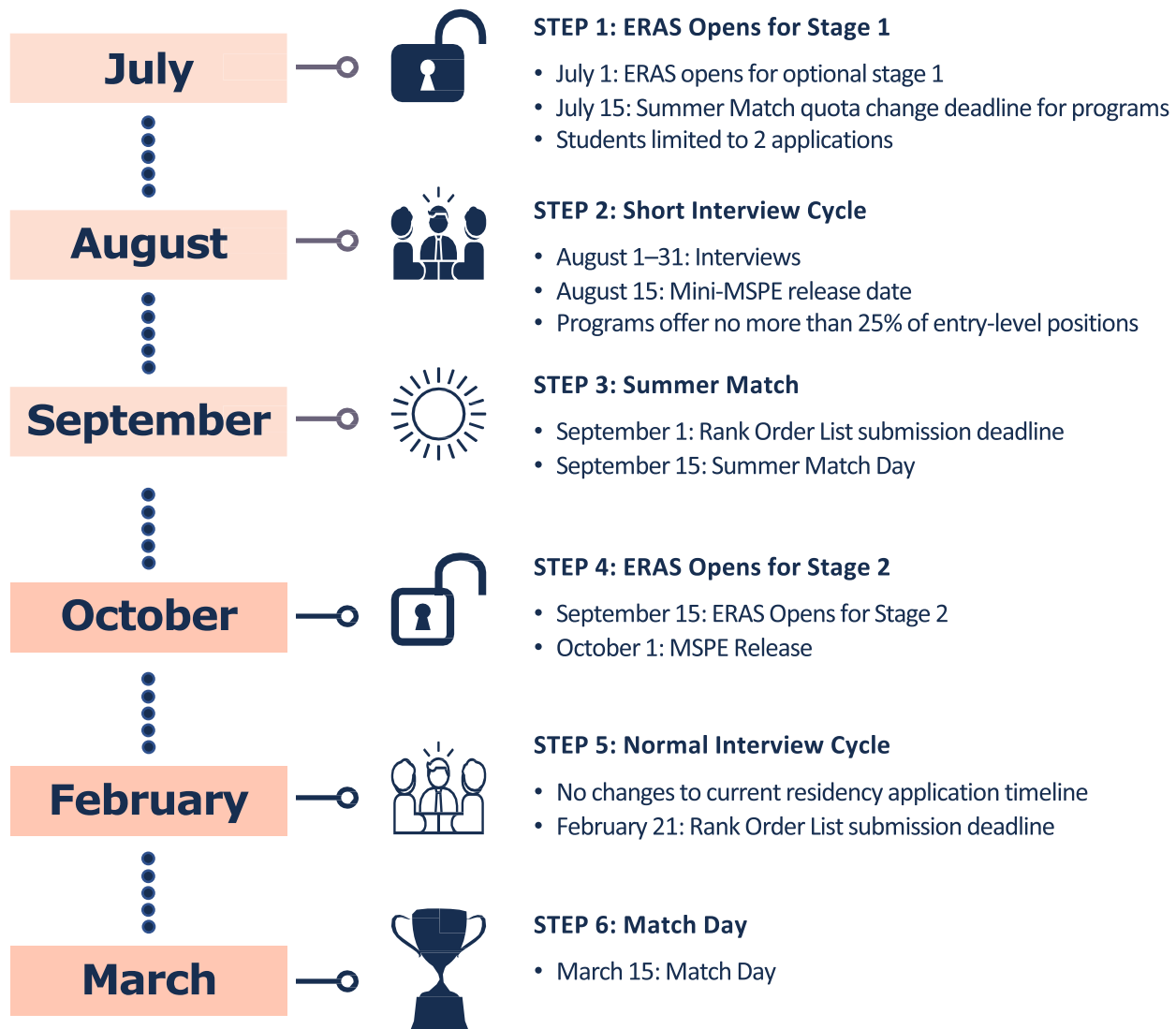
STEP 5

•••
Normal
Interview
Cycle



STEP 6

•••
Main
Residency
Match



Match: National Resident Matching Program, Residency Match®
ERAS: Association of American Medical Colleges, Electronic Residency Application Service®
MSPE: Medical Student Performance Evaluation

FIGURE 1 A proposal of operationalization parameters for a pilot test of the summer match

going to fill all of their slots in the summer match, there's not going to be any slots left in the March match" (dean for medical education).

Finally, participants were also divided on the potential consequences of a summer match for students "who are at a socioeconomic disadvantage, because [they] would interview and apply to fewer schools. If they don't get in, then [they'd] have spent a ton of money on those schools, and time, and plane tickets, plus ... the regular Match" (medical student). Similarly concerning, "it will be very hard for people with limited finances. You're going to pay pretty hefty airline fees if you're booking flights last minute" (DIO).

Return on investment

Medical student participants were particularly enthusiastic about a summer match, as matching early might reduce their uncertainty about the future: "I would love to participate. I really am not a fan of having my future up in the air" (medical student). One student believed "that if done really well, it can help decrease the number of applicants ... and it can trickle down to affect the match system in general." The same student added, "I have a very strong preference for where I want to go. So, I would definitely participate" (medical student).

Many educational administrators were concerned that a summer match would increase overall program director workload without substantially decreasing application volume: "I think from a residency standpoint, unless you're going to get all of your applicants through the early decision process, it actually increases the work" (DIO).

Participants were divided on whether the value of the summer match would be worth disruption of summer vacations by additional summertime work. "I was a program director until 3 years ago. Children's vacations from school are in the summer, and my family would have killed me if I said, 'I'm going to spend the summer reviewing applications and doing interview season'" (DIO). Similarly, one PD believed the summer match would be "more work for me with less bang for my buck. All of a sudden, we're reviewing applications in a time when we have other things that are traditionally on our plate" (PD).

Some participants thought that it would be difficult to prepare for a summertime application process because "it takes too many resources ... And having to add additional events to the process ... I think it'd be difficult" (DIO).

Several participants believed that it would be strategically necessary for all programs to participate: "Well, I think that it's an arms race. If it's something that gets implemented, it's something you have to participate in. If you're going to compete for the best applicants, and the best applicants are going to apply [early], then you have to participate" (DIO).

DISCUSSION

Our sample of educational administrators and trainees believes that residency application process reform is needed to address the burden of rising residency application numbers and costs to students

and programs. Participants had broadly favorable views of a summer match as a potential solution, while recognizing implementation challenges and unintended consequences. We, therefore, recommend pilot testing of an optional summer match as an important policy solution. Testing by single specialties using independent residency application processes may be most feasible and would provide critical insights before NRMP implementation across all specialties. EM is among those specialties most strained by the current application process and thus represents a potential collaborator with the most to gain in a pilot test. Our summer match protocol is modeled after early decision programs used for decades by approximately 25% of U.S. colleges and universities.¹⁹ Available information about early decision suggests both benefits and challenges, including many that are similar to concepts discussed by our participants. Early decision limits students to only one application, uses binding admittance decisions, and thereby reduces the total number of college applications.²⁰ Criticisms include differential benefit to privileged or elite applicants, disadvantages to first-generation students, and a lack of rigorously defined screening tools to guide admission decisions.²¹ Similar issues were raised in this study and would need to be mitigated in a summer match.

Participants were concerned that shifting the workload of PDs from winter to summer might increase PD stress. Importantly, our intended outcome of a summer match is a *decrease* in overall workload, not more or less convenient work. Strict application limits in a summer match might address these concerns. Removing successful summer match students from the Match pool could theoretically reduce the total number of applications submitted, thereby decreasing the work burden to residency programs. Careful research and pilot testing would need to evaluate whether this assumption is accurate.

Key features of our summer match protocol include opt-in participation by both applicants and programs, no change to the current Match timeline, and binding match outcomes for both stages. Participants suggested that students be limited to less than 10 applications in a summer match, and our model uses a two-application limit to avoid excessive applications in the summer and control the size of the summer match. This limit closely resembles collegiate early decision. Programs would be limited to offer no more than 25% of their entry-level positions. This limit is based on participant feedback that higher numbers of summer match positions would place pressure on most students to apply early, functionally moving the Match. Participants additionally pointed out that in a summer match it may be difficult or impossible for medical schools to produce a formal MSPE. Our model, therefore, includes a "mini-MSPE," which more closely approximates a letter of good standing. The final format of this document would need to be established prior to testing and implementation. Students who do not match in the summer would be automatically enrolled in ERAS and NRMP for the Match, with no additional fee to reapply to programs. Their participation in the summer match would not be disclosed to other programs, to prevent stigma.

Implementation of a summer match will require extensive collaborative partnerships between the Association of American Medical

Colleges, the NRMP, specialty organizations, medical schools, and student organizations. It would be irresponsible not to acknowledge and address the financial impact to organizations and individuals that would result from Match reform, and these implications must be carefully considered. We believe that the majority of stakeholder concerns can be addressed with well-designed pilot testing of our summer match protocol.

In summary, we suggest pilot testing of the summer match proposal by the NRMP or single specialties that includes rigorous program evaluation. Such evaluations should include trainee performance, trainee transfer out of specialty rate, medical student performance postmatch, qualitative study of applicants who match and do not match in the summer, number of applications per program, faculty time required to complete two match processes, quality of MSPEs, weighting and importance of application elements in file review, and equitability of the process.

LIMITATIONS

Our study has several important limitations. Our sampling strategy may have enriched recruitment of those with favorable or strong opinions of the project, although we believe our sample to be relatively diverse. Furthermore, our sample includes no international medical graduates or osteopathic physicians, which are two groups disproportionately affected by the costs and competitiveness of the residency application process. Despite the interview script clearly stating that there were no wrong answers to our questions, participants may have inferred that the interviewer had a favorable opinion of the summer match and softened any negative opinions that they held. Data collection occurred prior to the announcement that the United States Medical Licensing Exam Step 1 will change to pass/fail scoring²² and prior to the dramatic changes to the application process that happened due to the COVID-19 pandemic; thus, it is possible that participants would have changed their opinions knowing that virtual interviews can be successful and that there would be less discriminating data about students available during a summer match. Finally, our four physician investigators are from the same specialty, which may have yielded homogenous opinions of the summer match proposal.

CONCLUSIONS

Based on our study findings, we believe that our summer match protocol is worth further investigation by the National Resident Matching Program or single specialties, in collaboration with stakeholder organizations, as a potential policy change to refine the residency application process. Should the National Resident Matching Program or single specialties choose to pursue a summer match, rigorous program evaluation would need to be undertaken to determine its effects.

CONFLICT OF INTEREST

The authors have no potential conflicts to disclose.

AUTHOR CONTRIBUTIONS

All authors contributed to the study design, data collection or analysis, and manuscript preparation. Michael Dacre completed all interviews and deidentified data for analysis.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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