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Primary Care Residency Perspectives on Medical Student Performance Evaluations

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Abstract

Introduction: With the transition of the United States Medical Licensing Examination (USMLE) Step 1 exam to pass-fail, residency directors are exploring alternative objective approaches when selecting candidates for interviews. The Medical Student Performance Evaluations (MSPE) portion of the application may be an area where objectivity could be provided. This study explored program directors' (PDs) perspectives on the utility of the MSPE as a discriminating factor for residency candidate selection.

Methods: We invited PDs of primary care residencies listed in the American Medical Association FRIEDA database to participate in a mixed-methods study assessing opinions on the MSPE, and the importance of student skills and application components when considering a candidate for interview. We obtained summary statistics for Likert-scale responses. We used inductive thematic analysis to generate themes from open-ended comments.

Results: Two hundred forty-nine PDs completed the survey (response rate=15.9%). Patient communication (83.6%) and teamwork (81.9%) were rated as very/extremely important skills, and being a graduate of a US medical school in the past 3 years (73.1%), no failures on board exams (58.2%), and MSPEs (54.8%) were rated as very/extremely important application components. Six hundred seventy-eight open-ended comments yielded themes related to desire for more transparency and standardization, importance of student attributes and activities, and other important components of applications.

Conclusion: PDs place a high value on the MSPE but find it limited by concerns over validity, objectivity, and lack of standardization. The quality of MSPEs may be improved by using a common language of skill attainment such as the Association of American Medical Colleges' Entrustable Professional Activities and using the document to discuss students' other attributes and contributions.

Introduction

It has become increasingly important for medical education programs to demonstrate the competence of their trainees beyond standardized exams so that they deliver high-value, cost-conscious, and safe patient care when practicing independently. Like Accreditation Council for Graduate Medical Education (ACGME) milestones for residencies, the Entrustable Professional Activity (EPA) framework could provide a common language for conveying students' abilities across the continuum of medical education. While there are still limitations to the

EPA model, they show promise to fulfill the Ottawa Criteria for good assessment: validity or coherence, reproducibility or consistency, equivalence with other assessment approaches, feasibility, acceptability, and a consideration of the educational effect and/or the catalytic effect on learning.[1,2]

The Medical Student Performance Evaluation (MSPE) is ranked among the most important academic factors considered by primary care residency directors in the applicant selection process, alongside United States Medical Licensing Examination (USMLE) Step 1 and 2 scores, COMLEX 1 and 2 scores, and previous board failures.[3,4] The MSPE is intended to provide residency program directors an honest and objective summary of a student's salient experiences, attributes, and academic performance.[5] While this is the aim, there is still much work to be done in optimizing the MSPE to facilitate the undergraduate medical education (UME)- graduate medical education (GME) transition.[6-8]

To the knowledge of the authors, no mixed-methods studies exist exploring primary care residency directors' opinions on the application, and in particular, the MSPE, and how well it serves as a vehicle to make decisions to invite students for an interview. We explored which EPA skills were valued most in candidates, as these answers may help undergraduate medical education (UME) faculty and students construct the strongest primary care application, and more broadly, inform the future format of the MSPE.

Methods

Participants

The sample included PDs of any accredited (allopathic or osteopathic) primary care residency in family medicine, internal medicine, pediatrics, or medicine-pediatrics with contact information available in the American Medical Association's (AMA) Residency & Fellowship Database (FRIEDA).[9] This study received approval by the Penn State University Institutional Review Board prior to recruitment (study #19263). We sent an email invitation to participate to a total of 1,566 potential participants. We sent three reminder emails were sent within the 2-week study time frame.

Procedures

We invited PDs to participate in the survey online using REDCap.[10] The survey contained 5-point Likert scale questions ranging from 1 ("not important") to 5 ("extremely important") to assess the perceived importance of student skills (eg, note writing, oral presentations, etc) and application components (eg, USMLE scores, academic rank, etc) when considering the selection of a residency program candidate.[11] Open-ended questions asked about additional candidate attributes and other factors taken into consideration during applicant selection, perceived strengths and limitations of the MSPE, and other additional comments. Demographics related to the participants and their programs were also obtained.

We converted Likert-scale responses for factors important to the MSPE into binary categories (yes: very or extremely important; no: not or slightly important and important). "Important" responses were added to the "no" category due to low responses for not/slightly important. We used SAS v.9.4[12] to derive descriptive statistics. We excluded incomplete responses from analysis.

Qualitative analysis of open-ended responses was performed using inductive thematic analysis by authors J.P. and Z.N.[13,14] We created a codebook prior to individual coding, followed by collaborative review to reach 100% agreement on final codes and themes.[15]

Results

Quantitative

We attained 249 responses (response rate=15.9%). Participant demographics are shown in Table 1.

In terms of student skills valued by program directors in primary care, the majority identified patient communication (83.6%) and teamwork (81.9%) as most important (Figure 1). The most valued application components were being a graduate of a US medical school in the past 3 years (73.1%), no failures on board exams (58.2%), and MSPEs (54.8%; Figure 2).

Qualitative

Open-ended responses (n=678) yielded four main themes related to MSPE limitations (n=193) and advantages (n=193), attributes most desired in a residency candidate (n=117), other factors considered for interview (n=104), and other additional comments (n=73). See Table 2 for representative quotes.

Theme 1: Desire for More Transparency, Comparative Data and Uniformity Across Institutions

Program directors found the MSPE to be very limited as a discriminator for applicant selection. Themes around the validity, objectivity, lack of standardization and general nature of MSPEs were identified as the most significant limitations.

Theme 2: Value of Student Attributes

Many PDs noted the importance of student attributes such as professionalism, accountability, and teachability when considering program candidates.

Theme 3: Value of Student Activities

PDs also noted the importance of student activities during their medical education, such as community engagement and service, leadership activities, and medical experience.

Theme 4: Importance of Other Application Components

Other application components were also valued by PDs, especially the personal statement, comments from rotations, and objective data such as Step 2 exam scores.

Discussion

Among primary care PD respondents, high value was placed on the MSPE, previous board failures, and Step 2 scores as tools to aid in resident selection, in accordance to 2021 National Resident Matching Program (NRMP) data, with the notable exception of Step 1 scores.[16] This difference is not unexpected, as the most recent NRMP data was released prior to the shift of Step 1 to pass-fail scoring.

While many issues with MSPEs were identified, the most commonly-noted themes were around validity, objectivity, standardization, length, and the general nature of the document. Given a desire for more standardization and objectivity, using the common language of the published Association of American Medical Colleges EPAs may prove a useful, common frame of reference. We propose that the MSPE could be improved by discussing a student's attainment of the core skills detailed in the EPAs. Schools could report how these were measured (eg, observed structured clinical encounter vs workplace-based assessment) and if competency committees were involved in reviewing the student data to improve transparency.

For primary care specialties, particular attention could be paid to the areas of patient communication (embedded in EPA 1- Gather a History and Perform a Physical Examination and EPA 11- Obtain Informed Consent for Tests and/or Procedures), teamwork (EPA 8- Give or Receive a Patient Handover to Transition Care Responsibility and EPA 9- Collaborate as a Member of an Interprofessional Team), and critical thinking (EPA 2-

Prioritize a Differential Diagnosis Following a Clinical Encounter, EPA 3- Recommend and Interpret Common Diagnostic and Screening Tests and EPA 4- Enter and Discuss Orders and Prescriptions).

Program director respondents also place a high value on prior medical experience, leadership, and community service activities, as well as the congruence of the student's interests with the program's mission. While these aspects are likely found in other portions of the application, highlighting their impact on the school and community may improve the MSPE's value to residency directors. Schools might also spend more time discussing the individual qualities of the student, specifically, professionalism, accountability, and character.

Though the four major areas of the country were evenly represented, respondents largely represented family medicine and there was a low number of respondents overall, making this the greatest limitation to generalizing these results.

Table 3 lists potential strategies for addressing the MSPE issues raised in this study. More research needs to be done to explore these strategies, as revisions to the MSPE incorporating these suggested changes may be beneficial to students and residency programs on a national level.

Tables and Figures

Table 1: Participant and Program Demographics (n=249)

Participant characteristics		
	n	%
Gender		
Male	105	44.7
Female	122	51.9
Prefer not to answer	8	3.4
Missing response	14	
Race		
White	175	72.9
Black	15	6.3
Asian	24	10.0
Native Hawaiian/Pacific Islands	2	0.8
Other	9	3.6
Prefer not to answer	16	6.4
Missing	8	
Ethnicity		
Hispanic or Latino	12	5.1
Not Hispanic or Latino	206	87.7
Prefer not to answer	17	7.2
Missing	14	
	Mean	**SD**
Age, years	**51.4**	**9.2**

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Table 1: Continued

Program characteristics		
	n	**%**
Program specialty		
Family medicine	134	53.8
Internal medicine	60	24.1
Pediatrics	41	16.5
Medicine-pediatrics	14	5.6
Entering class sizes		
0-20	197	84.9
21-40	27	11.6
41-60	5	2.2
61+	3	1.3
Missing response	17	
Program type		
University-based	63	25.5
Community-based	52	21.1
Community-based, university-affiliated	130	52.6
Other	2	0.8
Missing response	2	
Geographic region		
Northeast	65	26.3
Midwest	65	26.3
South	67	27.2
West	48	19.4
Puerto Rico	2	0.8
Missing response	2	
	Median	**SD**
% MD graduates	50.0	35.0
% DO graduates	25.0	26.6
% International graduates	10.0	30.0

Figure 1: Importance of MSPE Factors in Considering a Residency Candidate for an Interview

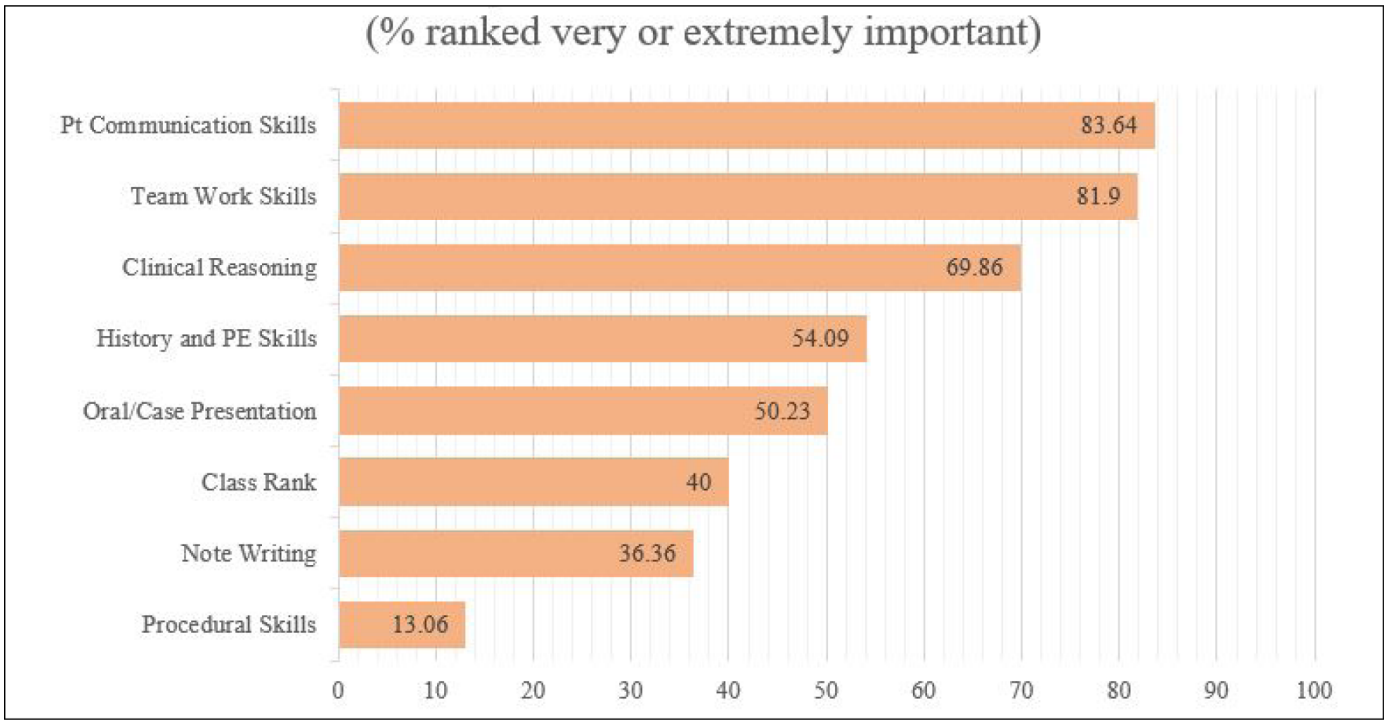

Figure 2: Importance of Application Factors in Considering a Residency Candidate for an Interview

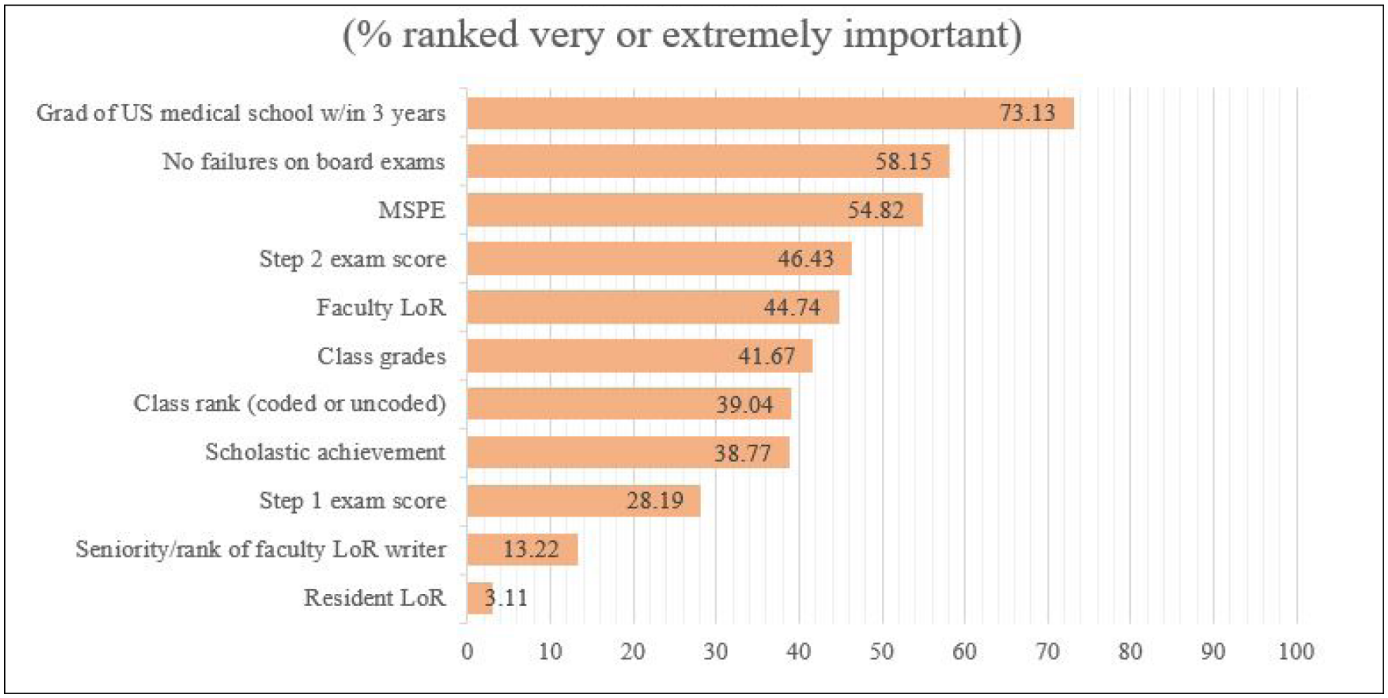

Table 2: Open-ended Themes and Representative Quotes Relating to Program Director Perceptions of Medical Student Performance Evaluations (MSPEs) and Other Factors in the Interview Process

Theme 1	Desire for more transparency, comparative data and uniformity across institutions
Codes	**Quotes**
Validity	*"All schools are trying to get their students matched and some outright seem to lie. When I see poor grades in the transcript and inflated MSPEs I have a hard time respecting any MSPEs from that school. If everyone is outstanding, is any one really?"*
	"The MSPE is filled with bias. This is the least important document to review. Overall, the Dean's want the student to match and hide their weaknesses."
	"Some institutions are consistently far too complementary and flowery, which makes me assign their evaluations less value. Some institutions are very sparse in their comments, which is a disservice to the candidate and to the reader. I worry that in the future medical schools will falsely pump up their MSPEs with buzzwords to get their students matched."
Objectivity	*"I really want objective comparisons."*
	"Many of the letters just repeat things I already know about the candidate. I would like to see class ranking and some objective measure of skills."
	"MSPE is most helpful when it has scales and measures and delineates the components of a score. I prefer a mixture of direct quotes from those who graded the student as well as markers on a continuum so that comparisons can be made."
Generic	*"Tends to be quite generic and often sounds as if it was predominantly written by someone who does not know and has never worked with the student."*
	"So many MSPEs are very similar in that most students are described as exceptional."
	"You are basically saying your top students are the same as your lower students."
Standardization	*"There is not a standard format. Some schools rank, some don't, etc."* *"… some schools provide accurate, balanced information and others seem very biased in favor of supporting the student instead of providing an accurate reflection of their skills."*
	"Variability among the writers and in the culture of the medical school how they assign attributes to the students."
	"MSPE's are too variable and inconsistent to be helpful. You cannot compare one institution to another."
Long	*"They are way too long and very challenging to really get from them quickly what you want. With thousands of applications to review, programs are looking for quick information, there simply is not time to read everything."*
	"They are rather lengthy at times."
	"Very tedious to read."
Not Helpful	*"More information is not helpful. The letters are just not helpful overall."*
	"I wish the MSPE was more helpful. It is just one piece of a holistic review when we select applicants for interview."
	"Not particularly useful unless I see an example of a negative letter."
Summarization	*"Collection of information in a single document. Often gives summary of attributes of the student and both their academic strengths and their extracurricular activities."*
	"Multiple points of input to give a good overview of performance."
	"It is the one place where everything is pulled together."

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Table 2: Continued

Theme 2	Value of student attributes
Codes	**Quotes**
Professionalism	*"If there have been any challenges during medical school how they were handled and overcome."*
	"This is real life, not a show the student puts on for interviews, and includes a sampling of what the student does in all areas, which could show professionalism if there is consistently strong performance over med school years."
	"A MSPE is most useful to rule candidates out. A more candid explanation of gaps or leaves is helpful in triaging candidates. Also, negative comments that make it into the MSPE mean that there is a lot more under the surface."
Character	*"Integrity and trustworthiness is also important. I wish there was a way to report on sense of self-efficacy and motivation."*
	"It is a comprehensive, 360 degree holistic document that also can tell the narrative and personal characteristics of a student."
	"Empathy, integrity, commitment to personal and professional growth."
Teachability	*"Trajectory is helpful. How well did they respond to feedback and grow over the clinical rotations?"*
	"Ability to take feedback, and desire to learn and improve (enthusiasm for learning)."
	"Ability to note independence and extraordinary abilities vs. struggling learners."
Alignment with program's mission and patient population	*"As a medicine PD it's not about who I want it's about who wants me. We seek to find candidates who can stay after their residency and assist us in serving the mission."*
	"Interest in serving underserved patients."
	"Specific interest in our patient population, goals align with our program, good "fit"."
Maturity	*"In a new program, maturity and life experience has been more important over the last 4 interview cycles."*
	"Level of maturity, life experiences, distance travelled to get to where they are now."
	"Life trajectory."
Accountability	*"I need to know if students are organized, reliable, and learn quickly; whether they're self-starters or whether they need a lot of assistance."*
	"Accountability to patients, the medical school and the profession of medicine."
	"We need to know if student has been unreliable, late/ procrastinating, passive, etc."
Theme 3	**Value of student activities**
Codes	**Quotes**
Medical Experience	*"Experience as a scribe or phlebotomist seems to create great doctors."*
	"It would be nice to know more about clinical experiences – eg, average number of complete H&Ps a student does on IM clerkship or AI; pager management; entering pended orders on AI; amount of responsibility in documenting during rotations; these things vary widely across medical schools leading to highly variable skills sets upon start of residency (and not predicted by step scores)."
	"Getting an idea of how the student is able to function in a clinical environment and not just academically."
Community Engagement/ Service	*"Evidence of authentic engagement in advocacy or service."*
	"Examples of outside activities, community engagement."
	"Community engagement activities, longitudinal involvement in things."
Leadership Activities	*"Participation in committees or a dedication to service/quality improvement practices."*
	"Evidence of effective leadership."
	"Leadership interests."
Extracurriculars	*"Engagement in extracurriculars."*
	"Activities, membership in organizations."
	"Examples of outside activities."

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Table 2: Continued

Theme 4	Importance of other application components
Codes	**Quotes**
Other application components	*"It is also the place where the comments from each rotation can be found-- and those are often insightful for finding the student who did not engage, or struggled with presentations, or was awkward, or was excellent but quiet so not noticed etc."*
	"Comments from a variety of specialties gives the opportunity to see how the student operates at baseline, not just when pursuing the specialty of interest."
	"Specific comments and grades on clerkship, even more helpful to see breakdown of grade."
Geographic location	*"Geography, history with that medical school."*
	"Geographic connection."
	"Ties to area."
Personal statement	*"Letters and personal statements are key."*
	"Personal statement (do they "get FM")."
	"The personal statement and LOR's is what should really sell the candidate."

Abbreviations: MSPE, Medical Student Performance Evaluations; FM, family medicine; LOR, letter of recommendation.

Table 3. Suggested Ways to Address the Issue in Assessments, Letters, Dean's Letter/MSPE Based on Themes and Codes

Code	Suggestion
Validity	• Include workplace-based assessment narratives in final letters
Objectivity	• EPA/competency language in a standardized format. • Descriptions of student skill sets within the EPA/competency framework
Generic	• Identify unique traits of individual students
Standardization	• EPA/competency language in a standardized format.
Long	• EPA/competency language in a standardized format. • Short summary/report of core clinical skills and more space devoted to unique aspects of students' achievements • Avoid redundancy to other parts of the residency application
Not helpful	• Addressing the above may provide more value to residency directors
Professionalism	• Highlight and describe professional excellence.
Medical experience	• Highlight how the skills learned from prior medical experiences translated to success in training
Community engagement/ service	• Discuss impact of student's efforts on the community.
Character	• This may come through more strongly in the personal statement
Teachability	• Acceptable to describe growth in the application materials
Leadership activities	• Describe accomplishments under the leadership of the student
Extracurriculars	• Describe impact of these activities on training or achievement
Accountability	• Assignments turned in on time, punctuality, etc
Alignment with program's mission and patient population	• This may come through more strongly in the personal statement
Maturity	• This may come through more strongly in the personal statement • Highlight how the skills learned from prior medical experiences translated to success in training
Summarization	• Short summary/report of core clinical skills

Abbreviations: MSPE, Medical Student Performance Evaluations; EPA, entrustable professional activity

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