HOD ACTION: Recommendations in Council on Medical Education Report 2 <u>adopted as amended</u> and the remainder of the report <u>filed</u>

REPORT 2 OF THE COUNCIL ON MEDICAL EDUCATION (I-22)

Mitigating Demographic and Socioeconomic Inequities in the Residency and Fellowship Selection Process (Reference Committee C)

EXECUTIVE SUMMARY

American Medical Association (AMA) Policy D-295.963 (5) calls on our AMA to:

work with appropriate stakeholders to study reforms to mitigate demographic and socioeconomic inequities in the residency and fellowship selection process, including but not limited to the selection and reporting of honor society membership and the use of standardized tools to rank applicants, with report back to the House of Delegates.

This report, which is in response to this directive, reviews the current status of the residency selection process, which has led to increasing pressures for both applicant and program; responses to those pressures; and the potential downstream consequences of the residency selection process on perpetuating demographic and socioeconomic inequities. (Note: This report uses the term "residency selection process" to comprise both residency and fellowship program selection.)

To provide context, the report starts by providing data regarding recent trends in application processing, including specific factors used by program directors when determining which applicants to interview for residency. Specific discussion about the use of "filters" of objective metrics is included. Next the report reviews three medical honor societies—Alpha Omega Alpha, Gold Humanism Honor Society, and Sigma Sigma Phi—and their efforts to address the perpetuation of inequities within their honoree selection processes.

Lastly, the report reviews various attempts, including several pilot programs, designed to optimize the residency selection process, including a review of various standardized tools and other innovations designed to help minimize the burden on program directors while ensuring ample opportunity for applicants and programs to find a good "fit" with each other. It concludes with recommendations calling for AMA action to promote equity in the residency application and selection process.

HOD ACTION: Recommendations in Council on Medical Education Report 2 <u>adopted as amended</u> and the remainder of the report <u>filed</u>

REPORT OF THE COUNCIL ON MEDICAL EDUCATION

CME Report 2-I-22

Subject: Mitigating Demographic and Socioeconomic Inequities in the Residency and

Fellowship Selection Process

Presented by: John P. Williams, MD, Chair

Referred to: Reference Committee C

.....

American Medical Association (AMA) Policy D-295.963 (5) calls on our AMA to:

work with appropriate stakeholders to study reforms to mitigate demographic and socioeconomic inequities in the residency and fellowship selection process, including but not limited to the selection and reporting of honor society membership and the use of standardized tools to rank applicants, with report back to the House of Delegates.

This report is in response to that directive and encompasses a review of the current residency selection process, which has led to increasing pressures for both applicant and program; responses to those pressures, including the use of innovative processes and tools; and the potential downstream consequences of the residency selection process on perpetuating demographic and socioeconomic inequities. Examination of these issues is important as disparities in the medical student population are transmitted into residency and fellowship, as matriculants of U.S. medical schools comprise the largest pool of applicants to those programs.

BACKGROUND

Current Medical Student and Resident/Fellow Demographics

 Racial, ethnic, socioeconomic, and geographic diversity is lacking in the physician workforce. A 2019 study of allopathic medical school programs revealed that, "Hispanic individuals are underrepresented among medical school applicants and matriculants by nearly 70% relative to the age-adjusted US population; black male applicants and matriculants, nearly 60%; black female applicants, nearly 30%; and black female matriculants, nearly 40%. Similarly, [American Indian and Alaska Native] AIAN individuals are underrepresented by more than 60% among applicants and matriculants." Likewise, data from the Association of American Medical Colleges (AAMC) for academic years 2018-2019 through 2021-22 show little appreciable change in disparities in socioeconomic status among applicants and matriculants to medical school as determined by parental occupation and highest level of education completed. Examination of family income of medical students also indicates a lack of diversity, with approximately three-quarters of medical school matriculants from the top two household-income quintiles—a distribution that has not changed in three decades.³

Furthermore, Shipman et al. reported a 15-year decline in the number of medical students from rural areas, to fewer than five percent of all incoming medical students in 2017. In addition, fewer than 0.5 percent of new medical students in 2017 with rural backgrounds were from

underrepresented racial/ethnic minoritized groups in medicine (URM). The authors conclude, "Both URM and non-URM students with rural backgrounds are substantially and increasingly underrepresented in medical school. If the number of rural students entering medical school were to become proportional to the share of rural residents in the US population, the number would have to quadruple."

Current trends, however, have shown positive outcomes stemming from efforts to diversify the physician workforce in recent years. For allopathic medical schools, the number of Black or African American students increased by 21.0 percent from 2020 to 2021, which is likely due to a 9.5 percent increase in matriculants (first-year students), with Black or African American men making the most significant gains. Likewise, matriculants who identify as Hispanic, Latino, or of Spanish origin increased by 7.1 percent (although American Indian or Alaska Native matriculants declined by 8.5 percent during this time period). While these gains are important, disparities remain.

 Existing disparities in the applicant pool may also be exacerbated as URM applicants match disproportionately into certain specialties (e.g., primary care fields) versus more competitive and remunerative specialties (e.g., surgical subspecialties). Overall, these disparities influence the composition of the physician workforce, which may have repercussions for patient care. For example, studies have demonstrated that health outcomes are improved when there is racial concordance between physician and patient. ⁶

Residency Selection Process

 After completion of medical school, nearly all medical students enter a residency program to continue their training. The competition for these programs can be intense, especially for some specialties with a limited number of residency positions. While competition between students is nothing new, the pressure felt by a student to match into a residency program in their specialty of choice has increased over recent years. A proxy measure for this perceived pressure is an increase in the number of applications per applicant.

	2017	2021	% change
Applicants using Electronic Residency			
Application Service (ERAS)	45,395	50,830	+12.0%
Average number of applications			
per applicant	90	101	+12.3%
Average number of applications			
received by program (all applicants)	1,206	1,058	-13.3%
Average number of applications			
received by program (USMGs only)	387	469	+21.2%
• • • • •			

Source: AAMC ERAS Statistics website

The reasons for this increase in the number of applications per applicant are numerous and likely include the perception of an increasing number of students applying to a relatively static number of residency positions, the ever-increasing medical education debt in relation to potential future earning potential, and lifestyle priorities of younger generations. The increasing number of applications likely has been exacerbated since the onset of the COVID-19 pandemic, when residency interviews transitioned to a fully virtual format, thereby allowing students to apply to, accept, and conduct interviews at a larger number of programs.

This trend causes significant pressure on program directors, as the administrative burden to review such a large volume of applications per residency position can understandably lead to the use of objective metrics such as GPA, standardized test scores, or honor society membership to narrow a large pool of applications to a more manageable size for detailed review. Program directors can use these and other objective metrics that are reported on the ERAS application as searchable "filters" to help determine which candidates to consider.

1 2

The National Resident Matching Program (NRMP) program director survey provides insight into how program directors review applications and choose to offer interview positions. The 2021 survey⁷ showed the percentage of program directors (all specialties) who cite a specific factor when considering whether to offer an interview to an applicant and, for those who cite these factors, their average importance on a scale of 1 (not important at all) to 5 (very important). These factors can be broken out into those that reflect academic performance and those that reflect personal characteristics. The following tables highlight the top five factors identified for each category; see Appendix C for graphics illustrating the full data. (Note: The survey response rate was 24.3 percent.)

Factors Reflecting Education and Academic Performance

	Percent Citing as a Factor	Average Weight
United States Medical Licensing Examination®	-	
(USMLE®) Step 1 Score	86.2	3.7
Medical Student Performance Evaluation		
(MSPE/Dean's Letter)	85.9	4.0
USMLE Step 2 CK Score	78.8	3.8
Grades in required clerkships	74.6	3.9
Any failed attempt at USMLE	74.1	4.4

Factors Reflecting Personal Characteristics

	Percent Citing as a Factor	Average Weight
Letters of recommendation in specialty	85.1	4.2
Personal statement (overall)	83.8	3.9
Diversity characteristics	80.9	4.1
Perceived commitment to specialty	79.5	4.3
Having overcome significant obstacles	75.5	4.1

While providing insight into what program directors consider important, this survey only tangentially looks at the process of filtering the objective metrics that are available through the ERAS application. Other data available in the same survey show that of those programs that use USMLE Step 1 scores in determining which applicants to interview, 60 percent use a set target score while 41 percent require only a passing score. These numbers are 68 percent and 25 percent, respectively, for those programs that screen using USMLE Step 2 CK. Comparable data for graduates of osteopathic medical school programs who take the Comprehensive Osteopathic Medical Licensing Examination of the United States (COMLEX-USA) Level 1 are 51 percent and 31 percent, respectively, with COMLEX-USA Level 2-CE scores 57 percent and 23 percent, respectively. (Note: These data on USMLE and COMLEX were gathered before conversion of USMLE Step 1 and COMLEX Level 1 reporting to pass/fail, which may have impact on program interpretation of Step 1/Level 1 and Step 2/Level 2 scores.)

It should be noted that while considering academic performance as a factor in choosing whom to interview, the weight provided to those factors is relatively low compared to some other factors, with the exception of "any USMLE failure." Still, a significant number of programs acknowledge filtering applicants based upon academic performance on standardized exams.

1 2

One positive sign is that a significant number of program directors use an applicant's diversity characteristics as an influence on their decision regarding whether to interview that applicant. This practice is in alignment with the intent of the Common Program Requirements of the Accreditation Council for Graduate Medical Education, which state that residency programs and their sponsoring institutions "must engage in practices that focus on mission-driven, ongoing, systematic recruitment and retention of a diverse and inclusive workforce of residents, fellows, faculty members, senior administrative staff members and other relevant members of the academic community."

 Overall, in the 2021 Residency Match, the average number of residency positions for all programs was nine, for which the average number of applications received by a program was 1,013. Of these applications, 506 (49.9 percent) were rejected based upon a standardized screening process and 423 (41.8 percent) received an in-depth holistic review.⁷

Although these data do not provide information on what the standardized screening process entailed, one survey of internal medicine program directors (who can receive up to 3,000 applicants per program) found that USMLE Step 2 CK score, USMLE Step 1 score, and attendance at a specific medical school were the top three filters used for initial application review.⁹

While evidence is limited, there is concern that the use of test scores for this type of initial screening review may introduce and exacerbate racial and socioeconomic biases into the selection process. Numerous studies have demonstrated the link between standardized tests—common in K-12 as well as higher education, along with the medical education continuum—and perpetuation of racial and socioeconomic bias. It is not the examinations themselves, however, that are the issue (for example, the Medical College Admission Test, or MCAT, for which the psychometric literature shows no evidence of bias) but rather the larger and more insidious patterns of systemic racism, which limit economic success and educational opportunity for minoritized populations. Finally, and most importantly, research shows that the ability to pass a test is not especially relevant to one's ability to provide quality medical care. Emotional intelligence, empathy, and communication are more valuable to the successful practice of medicine than sheer raw intelligence. Indeed, as Lucey and Saguil note, "the MCAT exam is designed to measure applicants' academic preparation for medical school . . . not . . . to measure or predict their performance related to other, essential competencies, such as interpersonal skills and communication, professionalism, and ethical behavior, or to take the place of other attributes that nonexam aspects of the admissions process evaluate."10

MEDICAL HONOR SOCIETIES AND THEIR ROLE IN RESIDENCY SELECTION

Background

 Similar to concerns about overreliance on standardized testing for advancement in higher education and medical education, the use of medical honor society membership to screen applicants has become a subject of increasing scrutiny in recent years. The next section considers three medical honor societies, their role in the residency selection process, and their respective work to increase attention to diversity and equity.

Alpha Omega Alpha

Formed in 1902, Alpha Omega Alpha ($A\Omega A$) has as its mission recognizing high educational achievement, honoring gifted teaching, encouraging the development of leaders in academia and the community, supporting the ideals of humanism, and promoting service to others. With over 200,000 members, $A\Omega A$ has chapters in the majority of Liaison Committee on Medical Education (LCME)-accredited medical schools in the US, including all historically Black colleges and universities (HBCUs).

According to the $A\Omega A$ website, "Membership in $A\Omega A$ may be attained as a medical student, resident, fellow, faculty member, alumni, clinician, or distinguished leader in medicine. Each school may elect up to 20% of the graduating class of students, up to 25 residents/fellows, up to 10 faculty, and three to five alumni, who, based on merit, demonstrate the characteristics of excellent physicians in alignment with $A\Omega A$'s mission and values." Each chapter makes decisions on proposed members in alignment with that institution's mission statement. As to diversity of membership, individual chapters may collect those data, but at the national level, the $A\Omega A$ collects only member name, school, year of induction, and contact information (along with specialty if provided by the member).

Gold Humanism Honor Society

The <u>Gold Foundation</u> was founded in 1988 to preserve and elevate the tradition of humanism in health care. To focus and enhance the foundation's efforts, the <u>Gold Humanism Honor Society</u> (GHHS) was founded in 2002; this international program now comprises <u>180 chapters</u> and has close to 45,000 members. As stated in a February 7, 2022, memorandum from the Gold Foundation to the AMA (see Appendix A), the GHHS "identifies medical student exemplars of humanism using a validated, peer-nomination system." No information is available regarding the diversity of its membership.

Sigma Sigma Phi

Founded in 1921, <u>Sigma Sigma Phi</u> (SSP) is an honorary service organization for osteopathic medical students who are selected by peers. Selection into SSP includes a blinded process that considers a minimum grade requirement and good standing by the medical school and then predominately the contributions made by the candidate to serve the community and humanity. Membership is open to all who apply and meet the minimum standards and is limited to no more than 25 percent of the total population of the student body. Students must have completed at least one semester of classroom work and show a high degree of scholarship and service to the college and/or profession. The <u>SSP website</u> lists 47 chapters as of February 2022. No information is available regarding the diversity of its membership.

Role of honor societies in the residency selection process

Medical honor societies are intended to recognize excellence in academic achievement and other markers of future success as physicians, including scholarship, aptitude for research, humanism, and professionalism. As with other variables previously mentioned, induction into these organizations may be used by program directors and other program personnel to evaluate applicants during the residency selection process; evidence suggests, however, that this factor is not as important as others.

In the 2021 NRMP data set, student membership in A Ω A was 13th on the list of important factors of an applicant, cited by 50.6 percent of program directors. Comparable data showed GHHS membership at 14th (50.5 percent) and SSP membership at 22nd (21 percent).

1 2

Concern about perpetuating disparities

 Despite the perceived value of recognizing excellence, medical honor societies have come under criticism in recent years as potentially exclusionary if not antithetical to efforts to increase equity, diversity, and belonging (EDB) in medical education and practice. One of the first institutions to address this concern was the Icahn School of Medicine at Mount Sinai, which in 2018 put a moratorium on student nominations to $A\Omega A$ "because it determined the selection process discriminates against students of color." Additionally, in May 2020, the University of California – San Francisco School of Medicine announced that it was suspending its $A\Omega A$ affiliation, beginning with the class of 2021, stating, in part, that the selection process and membership limitations may subvert efforts toward increased equity, through a misplaced emphasis on grades, assessments, and performance and demonstrated bias against non-white students. And the selection process are supplied to the selection process and membership limitations may subvert efforts toward increased equity, through a misplaced emphasis on grades, assessments, and performance and demonstrated bias against non-white students.

Evidence to support these concerns exists. One study, published in JAMA, found that, "the odds of $A\Omega A$ membership for white students were nearly 6 times greater than those for black students and nearly 2 times greater than for Asian students" which "may undermine the pipeline of minorities entering the academic health care workforce." Other research shows that these trends extend beyond race/ethnicity to socioeconomic status, as students from backgrounds with lower income than their peers were less likely to be $A\Omega A$ members." This phenomenon has been described as an "amplification cascade," in which "small differences in assessed performance lead to larger differences in grades and selection for awards," such that medical students from populations underrepresented in medicine (UIM) "received approximately half as many honors grades as not-UIM students and were three times less likely to be selected for honor society membership." 16

Addressing disparities in medical honor society selection

ΑΩΑ

 The upper limit for the percentage of medical student electees from a given chapter rose from 16 percent to 20 percent in October 2020, when the organization changed its constitution. This change was intended to help reduce the focus on grades as one of the highest determinants of achievement and instead highlight character attributes such as "trustworthiness, character, caring, knowledge, scholarship, proficiency in the doctor-patient relationship, leadership, compassion, empathy, altruism, and servant leadership," as described on the $A\Omega A$ website. The move reflects changes at many medical schools to eliminate or reduce grading and use a more holistic approach to selection and advancement.

In 2020, A Ω A declared a renewed focus on EDB to mitigate both conscious and unconscious bias in medical education, including assessments of medical students, resident physicians, and faculty in the nominations, selection, and election processes for the A Ω A. These principles are reflected in a statement on the <u>A Ω A website</u>, which notes that the organization "advocates for diversity in all of its forms – identity, cultural, geographic, experiential, race, ethnicity, gender, age, economic and social status, physical abilities, aptitude, and religious beliefs, political beliefs, and other ideologies." In addition, an <u>A Ω A award</u> recognizes medical schools that "demonstrate exemplary leadership, innovation, and engagement in fostering an inclusive culture that transforms the ideals of inclusion, diversity, and equity into successful programs." This work has also included efforts to increase the diversity of the A Ω A board. Potential future reforms include the annual reporting of

member demographic data; standardized, transparent criteria for selecting members that mitigate the potential for bias; and increased diversity within organizational leadership. Individual chapters also have a role to play, through such actions as implementing holistic review of potential members and annually reviewing newly elected cohorts to ensure that they match the institution's overall demographics. 18

GHHS

7 8 9

10

11

12

13

14 15

16 17

18 19

1

2

3

4

5

6

In the memo noted above, the Gold Foundation states, "In the past 23 months, the foundation and the GHHS have pivoted to respond vigorously to the challenges of COVID-19 and have redoubled our efforts to address [diversity, equity, and inclusion] in response to the racial reckoning following George Floyd's murder to support healthcare in which human interests, values, and dignity predominate." One of the organization's actions in this regard is the 2020-2021 GHHS national initiative, "Humanism and Healing: Structural Racism and its Impact on Medicine," which was followed by a virtual conference of the same name hosted by GHHS. In addition, the Gold Foundation is engaged in a continuous improvement project to determine best practices in diversity and inclusivity through work with the AAMC and individual GHHS chapters. To further the collective understanding of this issue, the Foundation and GHHS are also conducting research on the socio-demographic makeup of GHHS members to determine where differences exist to mitigate future issues. The results of this analysis are forthcoming.

20 21 22

SSP

23 24

25

26 27

28

Related to diversity of applicants or honorees, SSP staff indicate that such data are not tracked at the national level, but that meetings with chapter presidents and review of the lists of graduating seniors indicate an appropriate level of diversity. Staff added, "At this point we see no problems with the selection process. This has not been an issue or a problem with our organization, but if this is brought up and becomes a concern, we are ready to do whatever needs to be done to address this situation."

29 30 31

32

33

34

35

That said, it is important to provide context and note that DO schools report even lower levels of diversity than allopathic schools. Data from the AAMC and the American Association of Colleges of Osteopathic Medicine Application Services (AACOMAS) show a medical school matriculation rate of 16.9 percent for URM individuals entering allopathic programs 19 versus 12.1 percent for osteopathic programs.²⁰ In short, the "appropriate" level of diversity may be proportionate to the overall level of diversity in a given field, but that does not mitigate the core issue of inequity.

36 37 38

39

ATTEMPTS TO OPTIMIZE THE RESIDENCY SELECTION PROCESS

40

Standardized Tools

41 42

43

44

45

46 47

48

In 2018, the AAMC piloted a standardized video interview (SVI) for emergency medicine programs, with the intent of providing a useful supplementary tool for selecting applicants to interview. Its intent was to measure knowledge of professional behaviors along with interpersonal skills and communication. The SVI, however, was discontinued after three cycles due to lack of interest among both applicants and program directors. A letter from key stakeholders in emergency medicine to the AAMC delineated three reasons for the program's dissolution: "lack of evidence to support the SVI as an assessment tool, uncertainty around the cost of the program, and student perceptions."21

49

In addition to helping program directors decide which applicants to interview, it was hoped that use of the SVI would reduce bias in the selection process, as the interviews were scored by trained reviewers not associated with the programs, and the performance of those reviewers was subject to quality control. During the pilot phase, however, this standardized approach was subverted, in that the videos were shared with programs in addition to the scores.

1 2

Other standardized approaches to ranking applicants include CASPer (Computer-based Assessment for Sampling Personal characteristics (https://takealtus.com/casper/), an online, open-response situational judgment test. CASPer is used by some medical schools in the application process and has seen limited but increasing use in the residency selection process as well. For the 2022-23 application cycle, ophthalmology²² is piloting the use of the Altus Suite for Graduate Medical Education,²³ comprising supplemental applications that include CASPer and two other tests:

Snapshot, a one-way video interview designed to assess communication skills, self-reflection, and motivation for the profession, and

 • Duet, designed to assess alignment of values between an applicant and a program.

One article notes the use of CASPer in some general surgery residency programs led to a greater number of interview offers to applicants from minoritized populations.²⁴ With growing interest in ensuring professionalism, communication skills, and emotional intelligence among the physician workforce, the use of this and similar tools may grow. Currently, these are either used too infrequently or by so few programs that evidence is lacking to support or refute their use, especially in the context of equity.

Another tool, described in a 2017 study, "validates a process for selecting and weighting components of the ERAS application and interview day to create a customizable, institution-specific tool for ranking candidates to postgraduate medical education programs." The authors do not discuss whether this tool might have any impact on equity or diversity of applicants.

Holistic Review

Holistic review of applicants to medical school has been defined as "a flexible, individualized way of assessing an applicant's capabilities by which balanced consideration is given to experiences, attributes, and academic metrics... and, when considered in combination, how the individual might contribute value as a medical student and future physician." The authors of a 2021 *NEJM* Perspective note that holistic review "has been shown to enhance diversity without affecting the average grade-point average or exam scores for the entering class." Extending this process, holistic review has been encouraged to mitigate biases in the residency selection process and shift focus to factors associated with success in residency

While holistic review is viewed favorably by most, its practical use continues to face significant barriers. Widespread adoption is hampered by the growing number of residency applications, which exacerbates the administrative burden of reviewing a large volume of applications per open residency slot and can lead to the use of objective metrics to filter applications. One experiment seeks to use augmented intelligence and "big data" as tools for holistic screening of applicants to improve the process at the medical school admissions level. Research at New York University Grossman School of Medicine used clustering and other statistical techniques to develop profiles or "signatures" that charted the academic success and trajectory of four different types of applicants—"risers," "improvers," "solids," and "statics." Using this approach "can more sensitively uncover success potential since it takes into account the inherent heterogeneity within the student population."²⁸

 Supplemental ERAS Application and Preference Signaling

1 2 3

4

5

6

7

8

9

10

11

12

13

14 15

A recent effort by the AAMC, the Supplemental ERAS Application, seeks to empower applicants to share more information about themselves using a fair process and driving holistic review in the context of a high volume of applications. A list of FAQs on the AAMC website (see https://students-residents.aamc.org/applying-residencies-eras/supplemental-eras-application-faq) indicates that the application is "intended to help programs better identify applicants who are genuinely interested in their program, and whose interests and experience align well with the program's setting, mission, and goals." The supplemental application comprises three sections: past experiences about the applicant's most meaningful work, volunteer or research experiences; geographic information (by region and by urban/rural setting); and preference signals for specific programs. It shows promise as a vehicle to communicate information more relevant to residency selection in these early pilots, but its impact on equity is still unknown. Use of the supplemental application is growing, from the three fields of dermatology, general surgery, and internal medicine in 2021 to 16 specialties planning to use it for the 2023 ERAS season, representing more than 2,900 programs.

16 17 18

Interview capping

19 20

21

22

In response to the COVID-19 pandemic, ophthalmology, which participates in the San Francisco Match and thus has a different match timeline compared to most other specialties, has placed caps on the number of programs to which a student can apply. ²⁹ This cap is currently at 15 programs for the 2022-23 application cycle.

23 24 25

AMA ChangeMedEd Initiative

26 27

28

29 30

31

32 33

34

The AMA funds a number of collaborative projects to address the transition from medical school to residency. During its ChangeMedEd® 2021 conference, for example, the AMA funded three submissions out of an initial pool of 135 applicants from institutions or collaborations related to improving EDB in medical education. One program looks to view medical student evaluation and assessment through an equity lens to make needed changes that support increased diversity. The other two aim to help future physicians representing first-generation college attendees and students from socioeconomically disadvantaged backgrounds make the transition from community college to medical school in an expeditious and cost-effective way and to provide mentorship and physician role models to young people considering a career in medicine.³⁰

35 36 37

RELEVANT AMA POLICY

38 39

40

41

42

The AMA has a number of policies related to increased diversity in medical education and (ultimately) practice, as shown in Appendix B. In particular, edits to D-200.985, "Strategies for Enhancing Diversity in the Physician Workforce," are noted in this report's recommendations, to extend policy in favor of holistic review from solely medical school admissions to encompass residency/fellowship program application as well.

43 44 45

CONCLUSION

46 47

49

A 2020 article describes the opportunity for reform in the program application, interview, and 48 matching process occasioned by the pandemic and the potential for positive impact related to EDB: "This transformation to virtual interviews may allow us to reconsider how our present systems 50 perpetuate sociocultural biases." The article also notes, "In the current social climate, it is

incumbent on program leaders to consider their own processes to minimize bias—both at a personal level for their interviewers, but also at a systemic level within the systems we use.³¹[66]

A related article from the same authors, in a three-part series on recruiting, interviewing, and ranking residency program applicants, calls on program leadership to "deliberately incorporate procedures that ensure equity." When considering equity, virtual interviews have both pros and cons. On the plus side, students with less means, who were not as able as their more affluent peers to travel to multiple interviews, had greater access via virtual interviews. On the other hand, candidates and programs may not attain a true sense of each other, making ranking difficult and likely defaulting to familiarity and certainty, as opposed to choosing the best "fit." This may perpetuate existing bias. A secondary concern is the potential for a digital divide, with some candidates lacking the technology and/or expertise with visual rhetoric to ensure a professionally enhancing video image; this may also exacerbate existing inequities.

In their 2020 article, Lucey et al. classify equity in medical assessment and advancement as a "wicked problem"—in other words, one that is multilayered, complex, complicated, and rife with inherent conflict and dynamic tensions.³³ Addressing this problem will require continued innovation and sustained attention.

SUMMARY AND RECOMMENDATIONS

The current pressures related to the residency selection process contributed to the use of readily accessible comparative metrics (e.g., membership in one or more medical honor societies) when determining which applicants to interview. Overreliance on these "objective" measures can unintentionally perpetuate inequities and inhibit diversity in medical education. The current pressures related to the residency selection process contributed to the use of readily accessible comparative metrics (e.g., membership in one or more medical honor societies) when determining which applicants to interview. However, measures once viewed as objective can unintentionally perpetuate inequities and inhibit diversity in medical education. Numerous projects are underway to optimize the residency selection process, including several sponsored by our AMA. Moving forward, the profession must develop a resident selection process that is mutually beneficial for applicants as well as program directors and institutions, while ensuring a commitment to a diverse, equitable, and inclusive workforce.

The Council on Medical Education therefore recommends that the following recommendations be adopted and the remainder of this report be filed:

 That our AMA encourage medical schools, medical honor societies, and residency/fellowship programs to work toward ethical, equitable, and transparent recruiting processes, which are made available to all applicants. (New HOD Policy)

2. That AMA Policy D-200.985, "Strategies for Enhancing Diversity in the Physician Workforce," be amended by addition and deletion, to read as follows:

Our AMA will recommend that medical school admissions committees and residency/fellowship programs use holistic assessments of applicants that take into account the diversity of preparation and the variety of talents that applicants bring to their education with the goal of improving health care for all communities. (Modify Current HOD Policy)

CME Rep. 2-I-22 -- page 11 of 24

1 2 3 4 5	3.	That our AMA advocate for residency and fellowship programs to avoid using objective criteria available in the Electronic Residency Application Service (ERAS) application process as the sole determinant for deciding which applicants to offer interviews. (Directive to Take Action)
6 7	4.	That our AMA advocate to remove membership in medical honor societies as a mandated field of entry on the Electronic Residency Application Service (ERAS)—thereby limiting
8 9		its use as an automated screening mechanism—and encourage applicants to share this information within other aspects of the ERAS application. (Directive to Take Action)
10		information within other aspects of the Brain approximent (Breesive to Take Newton)
11 12	5.	That our AMA advocate for and support innovation in the undergraduate medical education to graduate medical education transition, especially focusing on the efforts of the
13		Accelerating Change in Medical Education initiative, to include pilot efforts to optimize
14 15		the residency/fellowship application and matching process and encourage the study of the impact of using filters in the Electronic Residency Application Service (ERAS) by
16		program directors on the diversity of entrants into residency. (New HOD Policy)
17		
18	6.	That our AMA encourage caution among medical schools and residency/fellowship
19 20		programs when utilizing novel online assessments for sampling personal characteristics for the purpose of admissions or selection and monitor use and validity of these tools. (New
21		HOD Policy)
22		nob roney)
23 24	7.	That AMA Policy D-295.963(5), "Continued Support for Diversity in Medical Education," be rescinded, as having been fulfilled through this report. (Rescind HOD Policy)

Fiscal note: \$1,000.

APPENDIX A: MEMORANDUM FROM THE ARNOLD P. GOLD FOUNDATION TO THE AMA, FEBRUARY 7, 2022

This briefing by The Arnold P. Gold Foundation (Gold Foundation) is in response to the request from the American Medical Association (AMA) for information on honor societies in American medical schools as they relate to equity and diversity in medical education and practice.

The Gold Foundation was founded in 1988 to preserve and elevate the tradition of humanism in healthcare (see https://www.gold-foundation.org/). As a means to focus and enhance the foundation's efforts, we created the Gold Humanism Honor Society (GHHS) in 2002 (https://www.gold-foundation.org/programs/ghhs/), and it now is an international program with 180 chapters and close to 45,000 members.

As an expression of the Gold Foundation itself, and as described below, the GHHS identifies medical student exemplars of humanism using a validated, peer-nomination system (McCormack et al., 2007). In the past 23 months, the foundation and the GHHS have pivoted to respond vigorously to the challenges of COVID-19 and have redoubled our efforts to address DEI in response to the racial reckoning following George Floyd's murder to support healthcare in which human interests, values, and dignity predominate.

We appreciate that AMA is also working on ensuring diversity and equity in medical education and practice, and we are pleased to share these updates on our work with the AMA House of Delegates. Should you have any questions regarding this response, please let us know.

Response to AMA regarding the GHHS in American Medical Education and Practice

The Gold Foundation established the Gold Humanism Honor Society (GHHS) twenty years ago as a signature program to recognize exemplary medical students, residents, and faculty who practice patient-centered care by modeling the qualities of integrity, excellence, compassion, respect, and empathy.

What began in 2002 at only a few medical schools now includes 180 chapters, with more than 3,000 students inducted each year and a total membership that numbers close to 45,000. The GHHS is an active society promoting humanism within medical schools and hospitals. Chapters participate in annual programs such as Thank a Resident Day and Solidarity Week for Compassionate Patient Care, and also undertake individual chapter-initiated projects on their campuses and within their communities. GHHS members are expected to be leaders of humanism on their campus and throughout their careers.

The GHHS leadership structure includes a national Advisory Council of 23 members comprising both the career stages and the broad functions represented in healthcare and academic medicine. The Advisory Council provides guidance and support to the society with committees and working groups, and the GHHS Advisory Council Chair and the Chair-Elect sit on the Gold Foundation Board of Trustees. Medical schools wishing to start a GHHS chapter apply and are thoroughly vetted. As noted, student selection into a GHHS chapter is based on peer nomination using a validated tool (McCormack et al., 2007). The initial group of peer-nominated students is then typically evaluated by a selection committee that considers academic eligibility, program director evaluations, an additional essay, interview, or other indication of the nominee's demonstrated humanism. While GHHS allows for some flexibility, all selection processes are vetted and approved when a medical school applies for a chapter and then reviewed periodically thereafter.

The Gold Foundation has long understood that equity, diversity, and inclusion are part of the very fabric of humanism. This was further spurred by the pandemics of COVID-19 and racism, which have highlighted inequalities and disparities, and compelled a closer look at flaws within our healthcare system. Within this broad context, the Gold Foundation reviewed all its programming through the lens of diversity, equity, inclusion, and anti-racism and has placed explicit emphasis on these issues within our work and strategic plan. (Click to read <u>Gold Foundation statement on diversity</u>, equity, inclusion and anti-racism)

The GHHS has specifically addressed this topic throughout the past two years in a number of ways, including:

- 1. Engaging a researcher to assess the demographics of GHHS
- 2. Establishing a National Initiative in 2020-21 for chapters on the impact of structural racism in medicine, which concluded with a large international conference in May 2021 to share what had been learned, as well as steps that schools and systems could take to begin addressing racism in medicine
- 3. Engaging in a continuous improvement project to determine best practices in diversity and inclusivity through work with the AAMC and individual GHHS chapters.

Research on GHHS Demographics

While racial/ethnic disparities in Alpha Omega Alpha (Ω A) membership have been documented (<u>Boatright et al., 2017</u>) and formally responded to by the A Ω A (<u>Byyny et al., 2020</u>), less is known about how the demographic composition of GHHS reflects the diversity of medical schools nationally. One study of GHHS published in *Academic Medicine* in 2019 demonstrated no difference in the likelihood of Black or African-American medical students being inducted into GHHS compared to white medical students (<u>Wijesekera</u>, et al., 2019).

Recognizing the importance of more deeply understanding the demographic composition of our members, the Gold Foundation decided in 2020 to reach out to an academic researcher to examine this issue. With the assistance of a Gold Foundation Board of Trustees advisory committee, <u>Dr. Dowin Boatright</u>, MD, MBA, MHS, Assistant Professor of Emergency Medicine and Officer for Diversity and Inclusion at Yale School of Medicine, was identified and agreed to include GHHS in his work.

Dr. Boatright and his research team are examining the association between GHHS membership and several aspects of student identity including race/ethnicity, sex, sexual orientation, and socioeconomic status (SES) in a national cohort of medical students. Although the results are preliminary and currently unpublished, per Dr. Boatright, so far, they are finding no disparities by sex, sexual orientation, or SES. Additionally, they are finding no difference in the likelihood of membership between Black, Hispanic, and Native American students and white students, but they are seeing some differences between white and Asian students favoring white students. The cause of this disparity is unknown and warrants further examination (D. Boatright, personal communication, January 19, 2022). Dr. Boatright expects to finalize his analysis and publish later this year, and the Gold Foundation has committed to supporting open access publication of this research.

The Gold Foundation is committed to continuing to transparently assess, understand, and address inequities. To that end, Dr. Boatright notes:

"Disparities in honor society membership are important to acknowledge and address. Nevertheless, it is unclear if removing honor societies from the ERAS application will solve the underlying problem contributing to these disparities nor ameliorate the downstream implication of these disparities on the physician workforce as medical students could always self-report honor society membership on the ERAS application.

Instead, it is likely more important for honor societies, like GHHS, to continuously examine honor society membership for systematic disparities and investigate evidence-based interventions to ensure equity in membership. Moreover, honor societies should be transparent in their findings and make data concerning disparities public. Additionally, as GHHS is committed to doing, the national honor societies should work with local chapters to promote equity and inclusion in membership selection." (D. Boatright, personal communication, January 19, 2022)

GHHS Programmatic Focus on Diversity, Equity, Inclusion and Anti-Racism

GHHS chapters have undertaken many projects dedicated to serving populations most in need. Recent projects include: Engagement in Justice in Middle Tennessee and the Nation (Vanderbilt), Chicago Street Medicine (University of Chicago, Illinois), The Invisible Minority: Healthcare Disparities in Appalachia (West Virginia University), How We Heal: Applying Structural Competency to Care for Immigrant Communities (UC Riverside), and many others.

The events of 2020 compelled GHHS leadership to create a focused National Initiative for 2020-2021 titled "Humanism and Healing: Structural Racism and its Impact on Medicine." Chapters were encouraged to use their leadership roles to start or extend conversations about racism and its impact on healthcare in their local communities and beyond, to create space for grieving, processing, and bearing witness around this topic, or to take action in one of many powerful ways that humanism can begin to heal. Chapter projects included such activities as:

- Creation of an anti-racism library collection (Cooper Medical School)
- Video Vignettes of Bias and Racism workshop (Central Michigan University)
- Panel discussion titled "A Calculated Risk: Engaging with Black Patients in Discussion About the Covid-19 Vaccine" (Emory University)
- Panel discussion titled "Fad-vocacy Armchair Empathy: Maintaining Social Justice Momentum" (joint project with Howard University and University of Michigan)
- Panel discussion titled "The Dismissal of Black Suffering" (University of California Irvine)
- Panel discussion titled "Medical Students Partner and Learn from Women Who are Incarcerated" (GHHS member Michelle Harper, MD, and the Ohio State University)

The National Initiative concluded with a large virtual conference on May 6-8, 2021. The conference, hosted by GHHS, included presentations from GHHS members (including panel discussions, workshops, and poster sessions) as well as many other Gold Foundation partners. Keynote presentations included:

- "The Ultimate 'Anti-Racism Statement' that Medicine Can Make is to Diversify Our Ranks" (Quinn Capers, MD, Associate Dean for Faculty Diversity and Vice Chair for Diversity and Inclusion, Department of Internal Medicine, UT Southwestern)
- "Partnership with HBCUs: Challenging Systemic Racism in Health Education, A Nursing Story" (Dr. Gina S. Brown, Dean, College of Nursing and Allied Health Sciences at Howard University; Dr. Eileen Sullivan-Marx, Dean of the New York University Rory Meyers College of Nursing; Dr. George Thibault (Ignitor), Immediate Past President of the Josiah Macy Junior Foundation)
- "COVID-19 and the Racial Reckoning" (Dr. Richard I. Levin, President and CEO of the Gold Foundation; Dr. Wayne Riley, President of SUNY Downstate Health Sciences University)

Many insightful and thought-provoking sessions encouraging participants to work toward increased health equity and racial equality were part of the conference, including a panel discussion on advocacy and grassroots change, a film screening of *Black Men in White Coats*, a panel on vaccine deliberation, and many more. The 2021-23 GHHS International Initiative expands on this work, titled "Healing the Heart of Healthcare: Reimagining How We Listen, Connect and Collaborate." GHHS members are leaders in humanism and will, with Gold Foundation support, continue to work toward greater diversity, equity, and inclusion within healthcare for years to come.

Continuous Improvement Project to Determine Best Practices in Diversity and Inclusivity

The Gold Foundation is continually working with GHHS chapters to provide guidance and determine best practices for ensuring that membership is inclusive and diverse. Currently, the GHHS leadership is nearing the conclusion of a biennial check-in with chapters. The 2021 check-in added questions to gather information regarding how each chapter is working to ensure and improve diversity and inclusion within its selection process, including members of the selection committee. The Gold Foundation is concurrently working with the AAMC to consider URM medical student representation within chapters as it compares with each chapter's medical school at large. These efforts will be used to create best practice strategies for GHHS chapters to ensure inclusivity and diversity.

Summary

The Gold Foundation established the Gold Humanism Honor Society (GHHS) twenty years ago as a signature program to recognize exemplary medical students, residents, and faculty who practice patient-centered care by modeling the qualities of integrity, excellence, compassion, respect, and empathy. What began in 2002 at only a few medical schools now includes 180 chapters, with more than 3,000 students inducted each year, and a membership that numbers close to 45,000. The Gold Foundation is committed to ensuring that the society is diverse and inclusive.

- Research on GHHS demographic makeup is underway by a Yale research team led by Dr. Dowin Boatright. Publication is expected shortly.
- The 2020-2021 GHHS National Initiative, "Humanism and Healing: Structural Racism and its Impact on Medicine," was followed by a virtual conference of the same name hosted by GHHS
- The Gold Foundation is engaged in a continuous improvement project to determine best practices in diversity and inclusivity through work with the AAMC and individual GHHS chapters.

APPENDIX B: RELEVANT AMA POLICY

D-200.985, "Strategies for Enhancing Diversity in the Physician Workforce"

- 1. Our AMA, independently and in collaboration with other groups such as the Association of American Medical Colleges (AAMC), will actively work and advocate for funding at the federal and state levels and in the private sector to support the following: (a) Pipeline programs to prepare and motivate members of underrepresented groups to enter medical school; (b) Diversity or minority affairs offices at medical schools; (c) Financial aid programs for students from groups that are underrepresented in medicine; and (d) Financial support programs to recruit and develop faculty members from underrepresented groups.
- 2. Our AMA will work to obtain full restoration and protection of federal Title VII funding, and similar state funding programs, for the Centers of Excellence Program, Health Careers Opportunity Program, Area Health Education Centers, and other programs that support physician training, recruitment, and retention in geographically-underserved areas.
- 3. Our AMA will take a leadership role in efforts to enhance diversity in the physician workforce, including engaging in broad-based efforts that involve partners within and beyond the medical profession and medical education community.
- 4. Our AMA will encourage the Liaison Committee on Medical Education to assure that medical schools demonstrate compliance with its requirements for a diverse student body and faculty.
- 5. Our AMA will develop an internal education program for its members on the issues and possibilities involved in creating a diverse physician population.
- 6. Our AMA will provide on-line educational materials for its membership that address diversity issues in patient care including, but not limited to, culture, religion, race and ethnicity.
- 7. Our AMA will create and support programs that introduce elementary through high school students, especially those from groups that are underrepresented in medicine (URM), to healthcare careers.
- 8. Our AMA will create and support pipeline programs and encourage support services for URM college students that will support them as they move through college, medical school and residency programs.
- 9. Our AMA will recommend that medical school admissions committees use holistic assessments of admission applicants that take into account the diversity of preparation and the variety of talents that applicants bring to their education.
- 10. Our AMA will advocate for the tracking and reporting to interested stakeholders of demographic information pertaining to URM status collected from Electronic Residency Application Service (ERAS) applications through the National Resident Matching Program (NRMP).
- 11. Our AMA will continue the research, advocacy, collaborative partnerships and other work that was initiated by the Commission to End Health Care Disparities.
- 12. Our AMA opposes legislation that would undermine institutions' ability to properly employ affirmative action to promote a diverse student population.
- 13. Our AMA will work with the AAMC and other stakeholders to create a question for the AAMC electronic medical school application to identify previous pipeline program (also known as pathway program) participation and create a plan to analyze the data in order to determine the effectiveness of pipeline programs.
- (CME Rep. 1, I-06; Reaffirmation I-10; Reaffirmation A-13; Modified: CCB/CLRPD Rep. 2, A-14; Reaffirmation: A-16; Appended: Res. 313, A-17; Appended: Res. 314, A-17; Modified: CME Rep. 01, A-18; Appended: Res. 207, I-18; Reaffirmation: A-19; Appended: Res. 304, A-19; Appended: Res. 319, A-19; Modified: CME Rep. 5, A-21)

D-295.963, "Continued Support for Diversity in Medical Education"

Our AMA will: (1) publicly state and reaffirm its stance on diversity in medical education; (2) request that the Liaison Committee on Medical Education regularly share statistics related to compliance with accreditation standards IS-16 and MS-8 with medical schools and with other stakeholder groups; (3) work with appropriate stakeholders to commission and enact the recommendations of a forward-looking, cross-continuum, external study of 21st century medical education focused on reimagining the future of health equity and racial justice in medical education, improving the diversity of the health workforce, and ameliorating inequitable outcomes among minoritized and marginalized patient populations; (4) advocate for funding to support the creation and sustainability of Historically Black College and University (HBCU), Hispanic-Serving Institution (HSI), and Tribal College and University (TCU) affiliated medical schools and residency programs, with the goal of achieving a physician workforce that is proportional to the racial, ethnic, and gender composition of the United States population; and (5) work with appropriate stakeholders to study reforms to mitigate demographic and socioeconomic inequities in the residency and fellowship selection process, including but not limited to the selection and reporting of honor society membership and the use of standardized tools to rank applicants, with report back to the House of Delegates.

(Res. 325, A-03; Appended: CME Rep. 6, A-11; Modified: CME Rep. 3, A-13; Appended: CME Rep. 5, A-21)

H-350.960, "Underrepresented Student Access to US Medical Schools"

Our AMA: (1) recommends that medical schools should consider in their planning: elements of diversity including but not limited to gender, racial, cultural and economic, reflective of the diversity of their patient population; and (2) supports the development of new and the enhancement of existing programs that will identify and prepare underrepresented students from the high-school level onward and to enroll, retain and graduate increased numbers of underrepresented students. (Res. 908, I-08; Reaffirmed in lieu of Res. 311, A-15)

D-295.963, "Continued Support for Diversity in Medical Education"

- 1. Our American Medical Association will publicly state and reaffirm its stance on diversity in medical education.
- 2. Our AMA will request that the Liaison Committee on Medical Education regularly share statistics related to compliance with accreditation standards IS-16 and MS-8 with medical schools and with other stakeholder groups.

(Res. 325, A-03; Appended: CME Rep. 6, A-11; Modified: CME Rep. 3, A-13)

H-295.888, "Progress in Medical Education: the Medical School Admission Process"

- 1. Our AMA encourages: (A) research on ways to reliably evaluate the personal qualities (such as empathy, integrity, commitment to service) of applicants to medical school and support broad dissemination of the results. Medical schools should be encouraged to give significant weight to these qualities in the admissions process; (B) premedical coursework in the humanities, behavioral sciences, and social sciences, as a way to ensure a broadly-educated applicant pool; and (C) dissemination of models that allow medical schools to meet their goals related to diversity in the context of existing legal requirements, for example through outreach to elementary schools, high schools, and colleges.
- 2. Our AMA: (A) will continue to work with the Association of American Medical Colleges (AAMC) and other relevant organizations to encourage improved assessment of personal qualities

in the recruitment process for medical school applicants including types of information to be solicited in applications to medical school; (B) will work with the AAMC and other relevant organizations to explore the range of measures used to assess personal qualities among applicants, including those used by related fields; (C) encourages the development of innovative methodologies to assess personal qualities among medical school applicants; (D) will work with medical schools and other relevant stakeholder groups to review the ways in which medical schools communicate the importance of personal qualities among applicants, including how and when specified personal qualities will be assessed in the admissions process; (E) encourages continued research on the personal qualities most pertinent to success as a medical student and as a physician to assist admissions committees to adequately assess applicants; and (F) encourages continued research on the factors that impact negatively on humanistic and empathetic traits of medical students during medical school.

(CME Rep. 8, I-99; Reaffirmed: CME Rep. 2, A-09; Appended: CME Rep. 3, A-11)

H-65.952, "Racism as a Public Health Threat"

- 1. Our AMA acknowledges that, although the primary drivers of racial health inequity are systemic and structural racism, racism and unconscious bias within medical research and health care delivery have caused and continue to cause harm to marginalized communities and society as a whole.
- 2. Our AMA recognizes racism, in its systemic, cultural, interpersonal, and other forms, as a serious threat to public health, to the advancement of health equity, and a barrier to appropriate medical care.
- 3. Our AMA will identify a set of current, best practices for healthcare institutions, physician practices, and academic medical centers to recognize, address, and mitigate the effects of racism on patients, providers, international medical graduates, and populations.
- 4. Our AMA encourages the development, implementation, and evaluation of undergraduate, graduate, and continuing medical education programs and curricula that engender greater understanding of: (a) the causes, influences, and effects of systemic, cultural, institutional, and interpersonal racism; and (b) how to prevent and ameliorate the health effects of racism.
- 5. Our AMA: (a) supports the development of policy to combat racism and its effects; and (b) encourages governmental agencies and nongovernmental organizations to increase funding for research into the epidemiology of risks and damages related to racism and how to prevent or repair them
- 6. Our AMA will work to prevent and combat the influences of racism and bias in innovative health technologies.

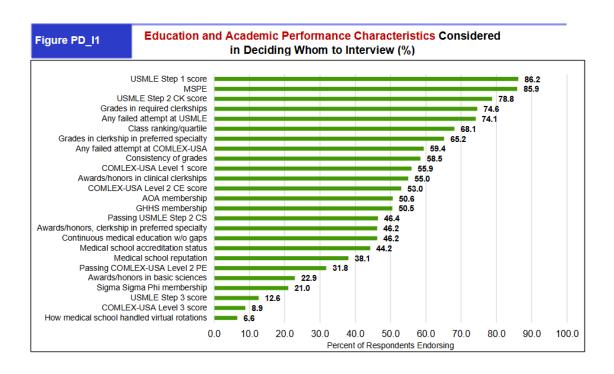
(Res. 5, I-20)

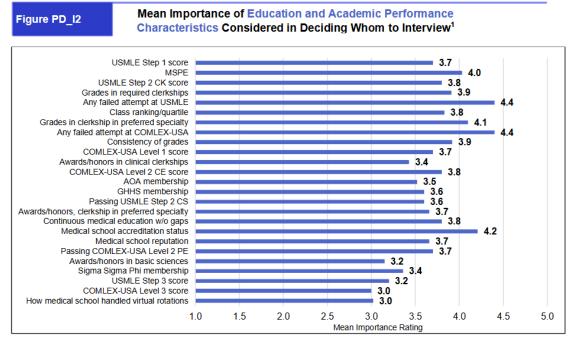
APPENDIX C – NRMP PROGRAM DIRECTOR SURVEY RESULTS

Source:

Results of the 2021 NRMP Program Director Survey. National Resident Matching Program, August 2021.

https://www.nrmp.org/wp-content/uploads/2021/11/2021-PD-Survey-Report-for-WWW.pdf.





¹ Rated on a scale of 1 (not at all important) to 5 (very important)

Figure PD_I3

Personal Characteristics and Other Knowledge of Applicants Considered in Deciding Whom to Interview (%)

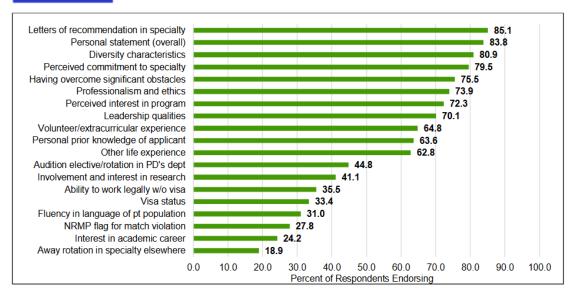
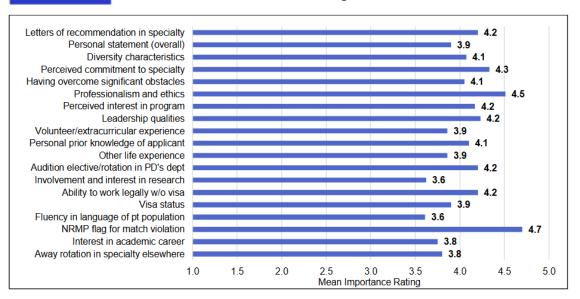


Figure PD_I4 Mean Importance of Personal Characteristics and Other Knowledge of Applicants
Considered in Deciding Whom to Interview¹



¹ Rated on a scale of 1 (not at all important) to 5 (very important)

REFERENCES

- ¹ Elle Lett et al. Racial/Ethnic Representation Among US Medical Students. *JAMA Network Open*. 2019;2(9):e1910490. Available at: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2749233. Accessed February 12, 2022.
- ² Medical education FACTS: 2021 FACTS: Applicants and Matriculants Data. Table A-24: Applicants, Acceptees, and Matriculant to U.S. MD-Granting Medical Schools by Socioeconomic Status (SES), Academic Years 2018-2019 through 2021-2022. Association of American Medical Colleges. Available at: https://www.aamc.org/media/57171/download?attachment. Accessed February 11, 2022.
- ³ An Updated Look at the Economic Diversity of U.S. Medical Students. Analysis in Brief, Association of American Medical Colleges. 2018 Oct;18(5). Available at: https://www.aamc.org/media/9596/download?attachment. Accessed February 12, 2022.
- ⁴ Shipman SA et al. The Decline In Rural Medical Students: A Growing Gap In Geographic Diversity Threatens The Rural Physician Workforce. *Health Affairs*. 2019 Dec;38(12):2011-2018. doi: 10.1377/hlthaff.2019.00924. Abstract available at: https://www.healthaffairs.org/doi/10.1377/hlthaff.2019.00924. Accessed February 12, 2022.
- ⁵ Medical School Enrollment More Diverse in 2021. Press release, Association of American Medical Colleges, December 21, 2021. Available at: https://www.aamc.org/news-insights/press-releases/medical-school-enrollment-more-diverse-2021. Accessed August 8, 2022.
- ⁶ Alsan M, Garrick O, Graziani GC. Does Diversity Matter for Health? Experimental Evidence from Oakland. National Bureau of Economic Research. Working Paper 24787; DOI 10.3386/w24787 Issue Date June 2018; Revision Date August 2019. Available at: https://www.nber.org/papers/w24787. Accessed February 12, 2022.
- ⁷ Results of the 2021 NRMP Program Director Survey. National Resident Matching Program, August 2021. Available at: https://www.nrmp.org/wp-content/uploads/2021/11/2021-PD-Survey-Report-for-WWW.pdf July 19, 2022.
- ⁸ Common Program Requirements (Residency). Accreditation Council for Graduate Medical Education. Available at: https://www.acgme.org/globalassets/pfassets/programrequirements/cprresidency_2022v3.pdf. Accessed August 8, 2022.
- ⁹ Garber AM, Kwan B, Williams CM, Angus SV, Vu TR, Hollon M, Muntz M, Weissman A, Pereira A. Use of Filters for Residency Application Review: Results From the Internal Medicine In-Training Examination Program Director Survey. J Grad Med Educ. 2019 Dec; 11(6): 704–707. doi: 10.4300/JGME-D-19-00345.1. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6919169/. Accessed February 16, 2022.
- ¹⁰ Lucey CR, Saguil A. The Consequences of Structural Racism on MCAT Scores and Medical School Admissions: The Past Is Prologue. *Acad Med.* 2020 Mar;95(3):351-356. doi: 10.1097/ACM.000000000002939. Accessed August 26, 2022.
- ¹¹ Alpha omega alpha how members are chosen. Alpha Omega Alpha. Available at: https://www.alphaomegaalpha.org/how.html. Accessed February 16, 2022.
- ¹² Gordon M. A Medical School Tradition Comes Under Fire For Racism. National Public Radio. September 5, 2018. Available at: https://www.npr.org/sections/health-shots/2018/09/05/643298219/a-medical-school-tradition-comes-under-fire-for-racism. Accessed February 14, 2022.

- ¹³ UCSF School of Medicine suspends affiliation with Alpha Omega Alpha (AΩA) Honor Society. Available at: https://meded.ucsf.edu/news/ucsf-school-medicine-suspends-affiliation-alpha-omega-alpha-aoa-honor-society. Accessed February 16, 2022.
- ¹⁴ Boatright D, Ross D, O'Connor P, Moore E, Nunez-Smith M. Racial Disparities in Medical Student Membership in the Alpha Omega Alpha Honor Society. JAMA Intern Med. 2017;177(5):659-665. Available at: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2607210. Accessed February 14, 2022.
- ¹⁵ Nguyen M, Mason HRC, O'Connor PG, Nunez-Smith M, McDade WA, Latimore D, Boatright D. Association of Socioeconomic Status With Alpha Omega Alpha Honor Society Membership Among Medical Students. *JAMA Netw Open.* 2021;4(6):e2110730. doi:10.1001/jamanetworkopen.2021.10730. Available at: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2780554. Accessed June 29, 2022.
- ¹⁶ Teherani A, Hauer KE, Fernandez A, King TE Jr, Lucey C. How Small Differences in Assessed Clinical Performance Amplify to Large Differences in Grades and Awards: A Cascade With Serious Consequences for Students Underrepresented in Medicine. *Acad Med.* 2018;93(9):1286. Abstract at: https://pubmed.ncbi.nlm.nih.gov/29923892/. Accessed February 14, 2022.
- ¹⁷ Byyny RL, Martinez D, Cleary L, et al. Alpha Omega Alpha Honor Medical Society: A Commitment to Inclusion, Diversity, Equity, and Service in the Profession of Medicine. Acad Med. 2020;95(5):670-673. https://journals.lww.com/academicmedicine/fulltext/2020/05000/alpha_omega_alpha_honor_medical_societya.11.aspx. Accessed February 16, 2022.
- ¹⁸ Boatright D, O'Connor PG, Miller JE. Racial Privilege and Medical Student Awards: Addressing Racial Disparities in Alpha Omega Alpha Honor Society Membership. *Journal of General Internal Medicine*. Volume 35, pages 3348–3351 (2020). Available at: https://link.springer.com/article/10.1007/s11606-020-06161-x. Accessed February 16, 2022.
- ¹⁹ Table A-12: Applicants, First-Time Applicants, Acceptees, and Matriculants to U.S. MD-Granting Medical Schools by Race/Ethnicity (Alone), in 2021 FACTS: Applicants and Matriculants Data. Association of American Medical Colleges. Available at: https://www.aamc.org/data-reports/students-residents/interactive-data/2021-facts-applicants-and-matriculants-data. Accessed August 30, 2022.
- ²⁰ Applicants & Matriculants by Race/Ethnicity 2009-2021, in AACOM Research Reports. American Association of Colleges of Osteopathic Medicine. Available at: https://www.aacom.org/reports-programs-initiatives/aacom-reports. Accessed August 30, 2022.
- ²¹ Murphy B. Fade to black: Why AAMC scrapped the standardized video interview. American Medical Association, Nov 12, 2019. Available at: https://www.ama-assn.org/residents-students/residency/fade-black-why-aamc-scrapped-standardized-video-interview. Accessed February 16, 2022.
- ²² Ophthalmology Residency Match FAQs. Association of University Professors of Ophthalmology, SFmatch Residency and Fellowship Matching Services. Available at: https://aupo.org/sites/default/files/2022-05/Residency%20Match%20FAOs 2022.pdf. Accessed August 8, 2022.
- ²³ Altus Suite for Graduate Medical Education. Altus Assessments. Available at: https://takealtus.com/altus-suite-for-gme/. Accessed August 8, 2022.
- ²⁴ Pelletier-Bui A, Franzen D, Smith L, Hopson L, Lutfy-Clayton L, Parekh K, Olaf M, Morrissey T, Gordon D, McDonough E, Schnapp BH, Edens MA, Kiemeney M. COVID-19: A Driver for Disruptive Innovation of the Emergency Medicine Residency Application Process. *West J Emerg Med.* 2020 Aug 19;21(5):1105-1113. doi: 10.5811/westjem.2020.8.48234. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7514416/#b48-wjem-21-1105. Accessed July 12, 2022.

- ²⁵ Bosslet GT, Carlos III WG, Tybor DJ, et al. Multicenter Validation of a Customizable Scoring Tool for Selection of Trainees for a Residency or Fellowship Program. The EAST-IST Study. Annals of the American Thoracic Society. Available at: https://www.atsjournals.org/doi/10.1513/AnnalsATS.201611-938OC. Accessed July 12, 2022. https://doi.org/10.1513/AnnalsATS.201611-938OC
- ²⁶ Witzburg RA, Sondheimer HM. Holistic Review Shaping the Medical Profession One Applicant at a Time. *N Engl J Med* 2013; 368:1565-1567. Available at: https://www.nejm.org/doi/10.1056/NEJMp1300411. Accessed August 8, 2022. DOI: 10.1056/NEJMp1300411.
- ²⁷ Guevara JP, Wade R, Aysola J. Racial and Ethnic Diversity at Medical Schools Why Aren't We There Yet? *N Engl J Med* 2021; 385:1732-1734. DOI: 10.1056/NEJMp2105578. Available at: https://www.nejm.org/doi/full/10.1056/NEJMp2105578. Accessed February 16, 2022.
- ²⁸ Baron T, Grossman RI, Abramson SB, Pusic MV, Rivera R, Triola MM, Yanai I. Signatures of medical student applicants and academic success. PLOS One. January 15, 2020. https://doi.org/10.1371/journal.pone.0227108. Accessed August 24, 2022.
- ²⁹ Quillen DA, Siatkowski RM, Feldon S (on behalf of the Association of University Professors of Ophthalmology). COVID-19 and the Ophthalmology Match. Ophthalmology. 2021 Feb; 128(2): 181–184. Published online 2020 Jul 10. doi: 10.1016/j.ophtha.2020.07.012
- ³⁰ Murphy B. Boost for 3 big ideas to improve diversity in medical education. American Medical Association, Nov 9, 2021. Available at: https://www.ama-assn.org/education/medical-school-diversity/boost-3-big-ideas-improve-diversity-medical-education. Accessed February 16, 2022.
- ³¹ Sternberg K, Jordan J, Haas MRC, He S, Deiorio NM, Yarris LM, Chan TM. Reimagining Residency Selection: Part 2-A Practical Guide to Interviewing in the Post-COVID-19 Era. J Grad Med Educ. 2020 Oct;12(5):545-549. doi: 10.4300/JGME-D-20-00911.1. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7594790/. Accessed July 12, 2022.
- ³² Jordan J, Sternberg K, Haas MRC, He S, Yarris LM, Chan TM, Deiorio NM. Reimagining Residency Selection: Part 3-A Practical Guide to Ranking Applicants in the Post-COVID-19 Era. J Grad Med Educ. 2020 Dec;12(6):666-670. doi: 10.4300/JGME-D-20-01087.1. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7771593/#i1949-8349-12-6-666-b03. Accessed July 12, 2022.
- ³³ Lucey CR, Hauer, KE, Boatright, D, Fernandez A. Medical Education's Wicked Problem: Achieving Equity in Assessment for Medical Learners. *Acad Med*: December 2020 Volume 95 Issue 12S p S98-S108. doi: 10.1097/ACM.000000000003717. Available at: https://journals.lww.com/academicmedicine/Fulltext/2020/12001/Medical_Education_s_Wicked_Problem_Achieving.17.aspx. Accessed February 16, 2022.