Coalition for Physician Accountability

Initial Summary Report and Preliminary Recommendations of the Undergraduate Medical Education to Graduate Medical Education Review Committee (UGRC)

Executive Summary:

In the summer of 2020, a Planning Committee of the Coalition for Physician Accountability selected the members of a new committee – the Undergraduate Medical Education (UME) to Graduate Medical Education (GME) Review Committee **(UGRC) – and charged them with the task of recommending solutions to identified challenges in the UME-GME transition**. The UGRC is pleased to release this report, which contains background materials and information about the UGRC's formation, structure, and process, and includes the committee's 42 preliminary recommendations.

Preamble:

The charge to the UGRC stated that there are **identified challenges in the transition between medical school and residency that are negatively impacting the UME-GME transition.** These include, but are not limited to, the following:

- Disproportionate attention towards finding and filling residency positions rather than on assuring learner competence and readiness for residency training;
- Unacceptable levels of stress on learners and program directors throughout the entire process;
- Inattention to optimizing congruence between the goals of the applicants and the mission of the programs to ensure the highest quality health care for patients and communities;
- Mistrust between medical school officials and residency program personnel;
- Overreliance on licensure examination scores in the absence of valid, trustworthy measures of students' competence and clinical abilities;
- Lack of transparency to students on how residency selection actually occurs;
- Increasing financial costs to students as well as opportunity costs to programs associated with skyrocketing application numbers;
- The presence of individual and systemic bias throughout the transition; and
- Inequities related to specific types of applicants such as international medical graduates.

In recent years, these and related challenges have expanded to the point that they are causing severe strain on the entire system. Simply put, there is an emerging consensus and urgency to bring forth solutions and as stated by the Planning Committee, that the *"UME-GME community is energized at this moment to solve these problems, and should therefore act boldly and fairly with transparency, while thoughtfully considering stakeholder input, and utilizing data when available."*

In addition to understanding the challenges noted above, **the UGRC had to develop a shared concept of what comprises the "UME-GME transition."** Through its deliberations, the committee came to a collective understanding that the transition encompasses a complex ecosystem involving many individuals and organizations. The transition begins during the preclinical phase of medical school as students consider specialty options, are counseled by mentors and faculty advisors, and embark on the long journey of professional identity formation. During their clinical years, students participate in patient care in numerous settings and on different rotations, choose a variety of electives, decide on a specialty, prepare application materials, research residency programs, apply to many programs, are offered and partake in interviews, interact with program personnel, are selected through a matching process, undergo hiring and credentialing, complete boot camps and advanced skills training courses, experience major life transitions, initiate new support structures, begin employment, participate in orientation, assume significantly more patient care responsibilities, and embed themselves within a learning and work environment that they will call home for the next three to seven years. In other words, the UME-GME transition is not simply the application, interview, and match process. Moreover, the transition does not end at the start of orientation to their first year of training. For unmatched students and international medical graduates, the process may take even longer.

As learners navigate through the UME-GME transition, they interact with numerous organizations with jurisdiction over specific components of the process. Each organization plays a role and impacts the success of the transition. However, the ecosystem is not governed by a single entity. In essence, it is a decentralized collection of interdependent parts, each with their own interests, which currently do not communicate effectively or function cohesively. **Solutions that bring the components of the transition into better alignment could have many positive outcomes and will likely decrease student costs, reduce work, enhance wellness, address inequities, better prepare new physicians, and enhance patient care.**

The committee believes that each proposed change will result in positive results and that timely implementation of the recommendations will improve the whole of the transition. Further, the UGRC recognizes that the recommendations fall into three distinct categories: transactional, investigational and transformational. Although recommendations in the first and second categories may take less time and effort to implement, the committee believes that the **transformational recommendations are arguably of greatest import because they require the medical education community to align with the public good.**

Background:

In 2018, a national conversation culminated regarding the use of numeric scores associated with licensing examinations in residency applicant screening and selection. In response, the chief executive officers of five national organizations (AMA, AAMC, ECFMG, FSMB, and NBME) agreed to co-sponsor an Invitational Conference on USMLE Scoring (InCUS). InCUS took place in March 2019 with a primary goal of reviewing the practice of numeric score reporting. Three recommendations that emerged focused on the USMLE:

(a) Reduce the adverse impact of the overemphasis on USMLE performance in residency screening and selection through consideration of changes such as pass/fail scoring;

(b) Accelerate research on the correlation of USMLE performance to measures of residency performance and clinical practice; and

(c) Minimize racial demographic differences in USMLE performance.

In contrast, the fourth InCUS recommendation focused on the UME-GME transition: **Convene a cross-organizational panel to create solutions for the assessment and transition challenges from UME to GME.** The final report from InCUS noted that there was general agreement that changes in scoring of licensure examinations would not address important aspects of the UME-GME transition system that needed attention. "*It was acknowledged that many organizations and stakeholder groups have responsibility for improving this transition. Yet if many are responsible, a concern exists that no one group will take ownership or feel empowered to carry on the broader conversation necessary to bring about appropriate change.*"

In September 2019, a proposal was made to the Coalition for Physician Accountability to convene a UME-GME Review Committee in line with the fourth recommendation from InCUS. As a result, a Planning Committee was created by the Coalition to develop the construct, membership, and charge of the Review Committee, which would be responsible for recommending solutions to identified challenges in the UME-GME transition. In January 2020, a call for nominations was issued for individual representatives to the Planning Committee from undergraduate medical educators, residency program directors, learners, and the public. The Coalition's Management Committee selected the individual members of the Planning Committee from over 60 responses. In addition, organizational representatives from AACOM, AAMC, AOGME, ECFMG, NBME, NBOME, and OPDA were appointed to the Planning Committee.

The Planning Committee met in March 2020 and identified the construct and structure of the UGRC, developed a process for selecting its members, and determined the key questions that the committee should consider. The Planning Committee discussed the scope of the UGRC and organized pertinent issues into three broad themes: (a) preparation and selection for residency, (b) the application process, and (c) overall considerations such as diversity and specialty specific competencies. The Planning Committee also spelled out the timeline, deliverables, expectations, and composition of the UGRC. An open call for nominations took place in May and June of 2020 and the Planning Committee reviewed 183 applications to populate a balanced UGRC that included undergraduate and graduate medical educators, organizational members, public members, students, and residents. Care was taken to ensure that multiple perspectives would be represented on the committee, including type of degree (DO and MD), racial and ethnic diversity, range of specialties, geographic distribution, and persons with a focus on undergraduate medical education (faculty and deans) and graduate medical education (program directors and designated institutional officials [DIOs]). In July 2020, committee members were selected and two co-chairs were chosen soon thereafter: one organizational representative (Elise Lovell) and one representing the medical education community (George Mejicano). Finally, a lead staff member (Andrea Ciccone) was chosen to guide and assist in the launch and ongoing operations of the UGRC. All the members are listed in Table 1.

UGRC Structure and Workflow

The UGRC was led by an Executive Committee comprised of the co-chairs, the lead staff member, and four workgroup leads. The co-chairs and lead staff member created the four workgroups to optimize group dynamics and distribute committee work in an organized fashion. Each workgroup's area of focus is listed in Table 2. Because the charge from the Planning Committee included an ambitious start-to-finish timeline (September 2020 to June 2021), this structure allowed groups to work in parallel and dive more deeply into assigned tasks. In February 2021, the co-chairs created a fifth workgroup to ensure that the UGRC appropriately addressed the critical issues of diversity, equity, and inclusion (DEI).

Between September 2020 and April 2021, the entire UGRC met virtually on five separate occasions. Each of these committee meetings consisted of multiple sessions spread over two or three days. In between the full committee meetings, each workgroup met intermittently to fulfill its tasks. A summary was widely distributed to the public after each committee meeting to update the community on the UGRC's progress to date. Further, the UGRC issued two explicit calls for external stakeholder engagement. The first one occurred in December and focused on envisioning the ideal state of the UME-GME transition. The second occurred in March and focused on descriptions of current innovations to improve the UME-GME transition.

Table 1: UGRC Members, their Constituency/Organization and their Assigned Workgroup		
Name	**Constituency/Organization**	**Workgroup Assignment**
Richard Alweis	DIO	B
Steven Angus	DIO	A
Michael Barone	NBME	A
Jessica Bienstock	DIO	D
Maura Biszewski	AOA	D
Craig Brater	ECFMG	A
Jesse Burk Rafel	Resident	C
Andrea Ciccone	Lead Coalition Staff Member	Unassigned
Susan Enright (Workgroup B Leader)	Medical Education	B
Sylvia Guerra	Student	B and DEI
Daniel Giang	DIO	C
John Gimpel	NBOME	B
Karen Hauer (Workgroup A Leader)	Medical Education	A
Carmen Hooker Odom	Public Member	B
Donna Lamb	NRMP	B
Grant Lin	Resident	D and DEI
Elise Lovell (UGRC Co-chair)	OPDA	C
George Mejicano (UGRC Co-chair)	Medical Education	D and DEI
Thomas Mohr	AACOM	C
Greg Ogrinc	ABMS	D and DEI
Juhee Patel	Student	A
Michelle Roett (DEI Workgroup Leader)	Medical Education	D and DEI
Dan Sepdham	Residency Program Director	C
Susan Skochelak	AMA	D
Julie Story Byerley (Workgroup D Leader)	Medical Education	D
Jennifer Swails (Workgroup C Leader)	Residency Program Director	C
Jacquelyn Turner	Clerkship Director	C and DEI
Alison Whelan	AAMC	B
Pamela Williams	Medical Education	A
William Wilson	Public Member	A

Table 2: UGRC Workgroup Focus Areas
[Note: Each workgroup also considered fairness, wellbeing, specialty focus and the public good.]
Workgroup A: Ensuring Residency Readiness - General competencies - Selection of residency/specialty field
Workgroup B: Mechanics of the Application/Selection Process from the UME Perspective - Information sharing - Application content - Application mechanics
Workgroup C: Mechanics of the Application/Selection Process from the GME Perspective - Information sharing - Application process - Interviewing - The Match
Workgroup D: Post-Match Optimization - Optimizing UME by enhancing residency readiness - Optimizing GME by ensuring patient safety - Information sharing - Feedback to UME
DEI Workgroup: Focus on Diversity, Equity, and Inclusion

Foundational Work of the Committee

The first virtual meeting of the UGRC occurred in September 2020. Seven consensus ideas quickly emerged on how to manage the work of the committee. First, the members agreed that the UME-GME transition encompassed far more than preparation, application, and selection for residency. This led to an **elaboration of the charge** to include both optimal preparation for caring for patients early in residency as well as considerations on how to leverage learners' time and experiences between the Match and the initial months of training. In other words, the successful transition requires adopting and valuing a growth mindset, accompanied by a dramatic change in focus where the emphasis shifts away from being student-centric and towards being patient-centric.

Second, it was evident that **level setting** was needed to ensure that all UGRC members had common understanding of the UME-GME transition because not all UGRC members were knowledgeable about each aspect and component of the transition ecosystem. To address this problem, the co-chairs called upon members of the committee, or in some cases employees of Coalition organizations, to create a series of video presentations (i.e., voice over power points) that members could watch asynchronously. The video presentations helped all the UGRC members reach a baseline level of understanding about the transition.

Third, there was a strong sentiment that the committee should approach its work using the concept of backward design (i.e., first imagine an idealized desired state and then think about how to create a system that produces it). Each UGRC workgroup spent two months **envisioning an idealized state** for their area of focus, and then the workgroup leaders harmonized them into a single ideal state for the UME-GME transition. The finished product included elements of the overall ecosystem and addressed specialty selection, learner selection, competence, continuum and handoff, technology, licensing and credentialing, life transition, residency launch, and residency environment. This exercise allowed the UGRC to articulate a blue-sky definition of success for an equitable, efficient and transparent system across the UME-GME transition that:

- Supports each learner's growth, evidence-informed specialty selection, achievement of competence, and wellness;
- Progresses learners from medical school to an ideal residency program that acknowledges the learner's unique strengths, goals, and learning needs, and ensures optimized professional identity formation;
- Balances the tension between individual freedoms and the public good to provide a learner-centered experience that is sustainable for program directors and institutions;
- Provides trustworthy documentation of competence across the continuum using reliable assessment tools that generate meaningful information for learners, educators, and where appropriate, regulators; and
- Is flexible and adaptable to changes in the medical education and health care systems, with a commitment to continuous quality improvement.

In December 2020, the UGRC released a survey designed to engage external stakeholder organizations about what should be included in the ideal state. Thirty-two organizations responded to the survey and the ideas they shared were organized into eight themes, each of which had been identified by the UGRC workgroup leads when creating the committee's harmonized ideal state. Thus, this first call for stakeholder engagement did not result in any substantive changes to what the UGRC had created. The UGRC's shared vision of the ideal state has guided the committee's ongoing work.

The fourth consensus idea was that the UGRC should approach the identified challenges in a systematic manner to unearth the root causes of problems with the current UME-GME transition. Thus, each workgroup spent many weeks discussing why identified challenges existed and why they persisted. This series of exercises produced workgroup-specific **Ishikawa diagrams (i.e., fishbones)** that identified myriad problems underlying the identified challenges associated with the transition. Each fishbone was presented to the entire committee so that UGRC members could reflect on the problems found by each of the workgroups. To ensure that the root cause analyses were sound, committee members responded to a series of provocative questions designed to challenge common assumptions about the transition, and were then asked to rate which problems were most important to address.

Importantly, the fifth consensus idea that the UGRC agreed upon was to avoid premature discussion or advocacy for any specific solution to the identified challenges of the UME-GME transition. The idea was simple: **articulate the desired outcome and understand the root problems before generating solutions.** Discussion about possible remedies was not permitted until the UGRC had created a shared ideal state for the UME-GME transition and each workgroup had completed its root cause analysis (fishbone diagram). Indeed, even after both exercises were finished, the committee took the time to examine the

ecosystem for components of the current system that worked well. This exercise (i.e., to make sure that the UGRC did not "throw out the baby with the bathwater") helped identify current aspects and processes that should be preserved.

In January 2021, the UGRC began to brainstorm solutions to the root causes identified by the workgroups. These brainstorming sessions occurred in both the workgroups and meetings of the entire committee. The committee used a virtual white board to help with discussion, dissection, debate, and refinement of ideas before they could be incorporated into recommendations. At this stage, the UGRC's sixth consensus idea was set into motion, which was simply "to not reinvent the wheel." Thus, a concerted effort was made to **identify potential solutions and innovations** described in the literature or implemented by institutions across the country.

In February 2021, the UGRC released a second call for external stakeholder input. This effort to engage stakeholders asked individuals and organizations to share innovations that had been implemented to address concerns about the UME-GME transition. In total, 35 responses containing 39 self-described innovations were submitted for review to the UGRC. Of note, the majority of the innovations submitted through this process had previously been identified by the committee.

Lastly, the seventh consensus idea was to **strive to be evidence-based whenever possible**. To that end, the UGRC secured the services of three research librarians who could search the literature and public databases when a member or a workgroup had a question about an issue. UGRC members had hopes of generating recommendations that were data-driven and evidence-based. However, relatively few aspects of the UME-GME transition have undergone systematic review. Similarly, many innovations described in the literature are descriptive in nature without generalizable outcomes. This led the co-chairs to embrace a consensus approach to endorsing recommendations, informed by available evidence, as opposed to identifying evidence-based recommendations.

Generation and Adoption of Recommendations

By February 2021, the workgroups had begun the process of forming preliminary recommendations for the entire committee to consider. As those efforts progressed, the workgroup leaders identified two issues that required attention by the co-chairs. The first was to provide a forum for controversial issues to be discussed by the full UGRC, and the second was to provide guidance regarding the level of granularity for the recommendations. To address the first concern, the co-chairs asked each workgroup leader to select a few recommendations that might generate disagreement, and the majority of the February UGRC meeting was devoted to discussion and debate about these topics. To address the second issue, a template was created that included instructions on how to frame each recommendation in broad terms, and to include specific examples on how a recommendation might be implemented.

The **rationale for bundling recommendations with more granular examples** is straightforward: successful adoption and implementation will depend on the cooperation of multiple organizations since the challenges the committee is trying to address are interdependent and not under the control of any one organization or stakeholder group. Recommendations based on principles and that describe characteristics of what can be achieved may have a greater likelihood of garnering support compared to specific recommendations that might be readily dismissed as unrealistic or politically difficult.

The initial recommendation template was designed to be comprehensive and includes the following ten fields: recommendation; narrative description; specific examples of how the recommendation might be implemented; questions for librarians; known citations or references; organizations or stakeholders that could help implement the recommendation; potential desired outcome and link to the ideal state; potential consequences; potential barriers to implementation; and future research questions. Due to the length of the initial template, the co-chairs also created a more succinct template that includes a recommendation and narrative description (provided at the end of this report).

As the groups worked to refine their recommendations and complete the templates, the co-chairs devised a process for sharing, presenting, adopting, reconsidering, and editing the preliminary recommendations from each workgroup. The co-chairs determined that **a super majority of 67% (two-thirds of the members present) would be required to adopt a recommendation**, and that the process would allow any member who had concerns to bring them forward and propose edits that would facilitate a vote to adopt. In other words, the underlying philosophy was for the committee to "get to yes" and achieve a high degree of consensus. Importantly, each recommendation brought to the full committee was sponsored by one of the workgroups, whose members had more thoroughly debated and thought through pertinent issues.

The UGRC met virtually on March 22-24, 2021, to take decisional votes on each recommendation proposed by the four main workgroups. In total, the workgroup leaders presented 41 recommendations to the committee. Each presentation included (a) the recommendation, (b) the narrative description, (c) components that each recommendation required (i.e., "must haves") as well as those that would be "nice to have," and (d) a table outlining pros and cons of the recommendation. The presentation was followed by a facilitated discussion that allowed members to ask questions, seek clarifications and raise concerns about the proposed recommendation. Potential edits to the recommendation were also entertained, followed by a binding vote to either adopt or not adopt the recommendation as written.

Workgroups that had proposed a recommendation that was not adopted were given the option of altering the recommendation and asking for the modified recommendation to be reconsidered. In addition, every member was allowed to propose new recommendations. However, only the DEI workgroup used that mechanism to propose new recommendations. The new recommendations, together with the recommendations being reconsidered, were processed in the same manner as the original 41 recommendations (i.e., a preliminary vote, presentation of the recommendation, facilitated discussion, and entertainment of suggested edits). When the UGRC met again on April 5, 2021, six more recommendations were adopted (three altered recommendations brought back for reconsideration and three new recommendations related to diversity, equity, and inclusion).

In total, the UGRC adopted 42 preliminary recommendations. They are organized under 12 themes: oversight; advising of learners; competencies and assessments; away rotations; diversity, equity, and inclusion in medicine; application process; interviewing; matching process; faculty support resources; post-match transition to residency; policy implications; and research questions. Based on the discussion and feedback, the workgroups will continue to refine the language of the preliminary recommendations. They will also fill in more details to the associated templates. However, substantive changes to the preliminary recommendations will not occur.

Next Steps

The co-chairs presented the 42 adopted recommendations to the Coalition for Physician Accountability on April 19, 2021. A third round of stakeholder engagement calling for feedback on the 42 preliminary recommendations will open on April 26 and close on May 26, 2021.

In parallel, the UGRC will finalize each recommendation's template material (including information gathered by the librarians about any available evidence), generate pertinent research questions, reflect on feedback from the Coalition, draft sections of the final report, engage stakeholders (e.g., student groups, program directors, and medical school deans), consider prioritizing the recommendations, and try to consolidate recommendations where appropriate to make the final number more manageable. The last meeting of the UGRC will take place on June 17-18, 2021 to review feedback from external stakeholders and to use that information to finalize the recommendations. The UGRC will deliver its final report to the Coalition on June 30, 2021 and disband soon thereafter. The Coalition will then meet in July 2021 to consider next steps towards implementation.

UGRC Preliminary Recommendations

The Coalition for Physician Accountability recommends the following, organized around 12 themes:
Theme: Oversight
Recommendation: 1. Convene a national ongoing committee to manage continuous quality improvement of the entire process of the UME-GME transition, including an evaluation of the intended and unintended impact of implemented recommendations. **Narrative description of recommendation:** One of the challenges in creating alignment and making improvements is the lack of a single body with broad perspective over the entire continuum. This creates a situation where organizations and institutions are unnecessarily and counterproductively isolated, without a shared mental model or mission. A convened committee, that includes learner and public representatives, should champion continuous improvement to the UME-GME transition, with the focus on the public good.
Theme: Advising of Learners
Recommendation: 2. Educators should develop a best-practice curriculum for UME career advising, including guidelines for equitable curriculum delivery and outcomes. **Narrative description of recommendation:** Guidelines are needed to inform U.S. allopathic, osteopathic or international medical schools in developing their career advising programs. Standardized approaches to advising along with career advisor preparation (both general and specialty-specific) can enhance the quality and quantity of advising and improve student trust in the advice that is received. Educators can enhance medical student career advising by developing formal guidelines with key recommendations based upon professional development frameworks and competencies. Implementation of such guidelines will result in greater consistency, thoroughness, effectiveness, standardization, and equity of medical school career advising programs to better support students in making career decisions and will lay the foundation for career planning across the continuum.

Recommendation:

3. A single, comprehensive electronic professional development career planning resource for students will provide universally accessible, reliable, up-to-date, and trustworthy information and guidance.

Narrative description of recommendation:

The AAMC's Careers in Medicine (CiM) platform achieves some of the aims of this recommendation. It is recommended to examine the strengths and limitations of CiM, expanding the content and broadening access to this resource, including to all students (MD, DO, IMG) at no cost, throughout their medical school training, or at a minimum, at key career decision-making points, in order to support students' professional development. The comprehensive, interactive resource should address both clinical and non-clinical career paths. The public good can be prioritized within this resource with content emphasis on workforce strategies to address the needs of the public, including specialty selection and practice location. Links to specialty-specific medical student advising resources should also be incorporated.

Recommendation:

4. Advising about alternative career pathways should be available for those individuals who choose not to pursue clinical careers. National career awareness databases such as Careers in Medicine should include information on these alternative pathways.

Narrative description of recommendation:

The financial and educational burden on learners is significant, and advising of learners should include alternative career pathways. This advice should be available to all learners, including students who choose not to pursue a career in clinical medicine, students who go unmatched, as well as the struggling student who may not be able to graduate from medical school. Centralized resources to support these efforts should be developed and should also include information available to international medical graduates.

Recommendation:

5. Evidence-informed, general career advising resources should be available for all medical school faculty and staff career advisors, both domestic and international. General career advising should focus on students' professionalization; inclusive practices such as valuing diversity, equity, and belonging; clinical and alternate career pathways; and meeting the needs of the public.

Narrative description of recommendation:

Centralized advising resources should reflect a common core, with supplemental information as needed. General advising should be differentiated from specialty-specific match advising or specialty recruiting. Advising tools should incorporate strengths-based approaches to career selection. The resources should include the option of non-clinical careers without stigma. Basic advising information should be created for all faculty who interact with students to promote common understanding of career advising, professional development, specialty selection, and application procedures; introduce the role of specialty-specific advisors as distinct from other faculty teachers; and minimize sharing misinformation that is outdated or incorrect with students.

All advisors, both faculty and staff, who routinely perform general career advising should undergo a training process created as part of this resource development. Completing training and demonstrating needed knowledge and skill could lead to a certification as a trained general career advisor.

Recommendation:

6. To support evidence-informed, student focused, specialty-specific advising for all medical students, advising resources should be available for and used by advisors, both domestic and international.

Narrative description of recommendation:

Creation of evidence-informed, data-driven specialty-specific resources for advisors will fill an information gap and increase the transparency and reliability of information shared with students. Guidance contained

in the resources can support faculty in managing or eliminating conflicts of interest related to recruiting students to the specialty, advising for the Match, and advocating for students in the Match. Resources should also assist UME programs in supporting the unique needs of traditionally underrepresented, disadvantaged, and marginalized student groups. Basic advising information should be created for all faculty who interact with students to promote common understanding of career advising, professional development, specialty selection, and application procedures; emphasize the role of specialty-specific advisors as distinct from other faculty teachers; and minimize sharing misinformation that is outdated or incorrect with students.

All advisors, both faculty and staff, who routinely perform specialty-specific advising should undergo a training process created as part of this resource development that includes equity in advising and mitigation of bias. Completing training and demonstrating needed knowledge and skill could lead to a certification as a trained specialty-specific advisor.

Theme: Competencies and Assessments

Recommendation:
7. UME and GME educators, along with representatives of the full educational continuum, should jointly define and implement a common framework and set of outcomes (competencies) to apply to learners across the continuum from UME to GME.

Narrative description of recommendation:
A shared mental model of competence facilitates agreement on assessment strategies used to evaluate a learner's progress in those competencies and the inferences which can be made from assessments. Shared outcomes language can convey information on learner competence with the patient/public trust in mind. For individual learners, defining these outcomes will facilitate learning and may promote a growth mindset. For faculty, defining outcomes will allow for the use of assessment tools aligned with performance expectations and faculty development. For residency programs, defining outcomes will be useful through resident selection and learner handovers from UME, resident training, and resident preparation for practice.

Recommendation:
8. The UME community, working in conjunction with partners across the continuum, must commit to using robust assessment tools and strategies, improving upon existing tools, developing new tools where needed, and gathering and reviewing additional evidence of validity.

Narrative description of recommendation:
Educators from across the education continuum should use the shared competency outcomes language to guide development or use of assessment tools, and strategies that can be used across schools to generate credible, equitable, value-added competency-based information. Assessment information could be shared in residency applications and a post-match learner handover. Licensing examinations should be used for their intended purpose to ensure requisite competence.

Recommendation:
9. Using the shared mental model of competency and assessment tools and strategies, create and implement faculty development materials for incorporating competency-based expectations into teaching and assessment.

Narrative description of recommendation:
Faculty must understand the purpose of outcomes-focused education, specific language used to define competence, and how to mitigate biases when assessing learners. They must understand the purpose and use of each assessment tool. The intensity and depth of faculty development can be tailored to the amount

and type of contact that individual faculty have with students. Clerkship directors, academic progress committees, student competency committee members, and other educational leaders require more in-depth understanding of the assessment system and how determinations of readiness for advancement are made. This faculty development requires centralized electronic resources and training for trainers within institutions. Review of training materials, and completion of any required activities to document review and/or understanding, should be required on a regular basis to be determined by the development group.

Recommendation:
10. A convened group including UME and GME educators should reconsider the content and structure of the MSPE as new information becomes available in order to improve access to longitudinal assessment data about applicants. Short term improvements should include structured data entry fields with functionality to enable searching.

Narrative description of recommendation:
The development of UME competency outcomes to apply across learners and the continuum is essential in decreasing the reliance on board scores in the evaluation of the residency applicant. These will take time to develop and implement and may be developed at different intervals. As new information becomes available to improve applicant data, the MSPE should be utilized to improve longitudinal applicant information. In addition, improvements in the MSPE, such as structured data entry fields with functionality to enable searching should be explored.

Recommendation:
11. Meaningful assessment data based on performance after the MSPE must be collected and collated for each graduate, reflected on by the learner with an educator or coach, and utilized in the development of a specialty-specific individualized learning plan to be presented to the residency program for continued utilization during training. Guided self-assessment by the learner is an important component in this process and may be all that is available for some international medical graduates.

Narrative description of recommendation:
This recommendation provides meaning and importance for the assessment of experiences during the final year of medical school (and possibly practice for some international graduates), helps to develop the habits necessary for life-long learning, and holds students and schools accountable for quality senior experiences. It also uses the resources of UME to prepare an individualized learning plan (ILP) for interns to be utilized in the handover.

Recommendation:
12. Targeted coaching by qualified educators should begin in UME and continue during GME, focused on professional identity formation and moving from a performance to a growth mindset for effective lifelong learning as a physician. Educators should be astute to the needs of the learner and be equipped to provide assistance to all backgrounds.

Narrative description of recommendation:
Coaching can benefit a student's transition to become a master adaptive learner with a growth mindset. While this transition should begin early in medical school, it should be complete by the time that the student moves from UME to GME. If a learner does not transition to a growth mindset their wellness and success will be compromised. Consider adding specific validated mentoring programs (e.g., Culturally Aware Mentoring) and formation of affinity groups to improve sense of belonging.

Recommendation:
13. Structured Evaluative Letters (SELs) should replace all Letters of Recommendation (LOR) as a universal tool in the residency program application process.

Narrative description of recommendation:

A Structured Evaluative Letter, which would include specialty-specific questions, would provide knowledge from the evaluator on student performance that was directly observed versus a narrative recommendation. The template should be based on an agreed upon set of core competencies and allow equitable access to completion for all candidates. The SEL should be based on direct observation and must focus on content that the evaluator can complete. Faculty resources should be developed to improve the quality of the standardized evaluation template and decrease bias.

Recommendation:

14. Convene a workgroup of educators across the continuum to begin planning for a dashboard/portfolio to collect assessment data in a standard format for use during medical school and in the residency application process. This will enable consistent and equitable information presentation during the residency application process and in a learner handover.

Narrative description of recommendation:

Key features of a dashboard/portfolio in the UME-GME transition, and across the continuum, should include competency-based information that aligns with a shared mental model of outcomes, clarity about how and when assessment data were collected, and narrative data that uses behavior-based and competency-focused language. A mechanism should include learner reflections and learning goals. Dashboard development will require careful attention to equity and minimizing harmful bias, as well as a focus on the competencies and measurements that predict future performance with patients. Transparency with students about the purpose, use, and reporting of assessments, as well as attention to data access and security, will be essential.

Theme: Away Rotations

Recommendation:

15. Convene a workgroup to explore the multiple functions and value of away rotations for applicants, medical schools, and residency programs. Specifically, consider the goals and utility of the experience, the impact of these rotations, and issues of equity including accessibility, assessment, and opportunity for students from groups underrepresented in medicine and financially disadvantaged students.

Narrative description of recommendation:

Away rotations can be cost prohibitive yet may allow a student to get to know a program, its health system, and surrounding community. Some programs are reliant on away rotations to showcase their unique strengths in order to attract candidates. Given the multifactorial and complex role that away rotations fulfill, a committee should be convened to conduct a thorough and comprehensive review of cost versus benefit of away rotations, followed by recommendations from that review. Non-traditional methods of conducting and administering away rotations should be explored (e.g., offering virtual away rotations, waiving application fees, or offering away stipends particularly for financially disadvantaged students).

Theme: Diversity, Equity, and Inclusion (DEI) in Medicine

Recommendation:

16. To raise awareness and facilitate adjustments that will promote equity and accountability, demographic information of applicants (race, ethnicity, gender identity/expression, sexual identity/orientation, visa status, or ability) should be measured and reported to key stakeholders, including programs and medical schools, in real time throughout the UME-GME transition.

Narrative description of recommendation:
Inequitable distribution of applicants among specialties is not in the best interest of programs, applicants, or the public good. Bias can be present at any level of the UME-GME transition. A decrease in diversity at any point along the continuum provides an important opportunity to intervene and potentially serve the community in more productive ways. An example of accountability and transparency in an inclusive environment across the continuum is a diversity dashboard for residency applicants. A residency program that finds bias in its selection process (perhaps due to an Alpha Omega Alpha filter) could go back in real time to find qualified applicants who may have been missed, potentially improving outcomes.

Recommendation:
17. Specialty-specific best practices for recruitment to increase diversity across the educational continuum should be developed and disseminated to program directors, residency programs, and institutions.

Narrative description of recommendation:
Recognizing that program directors, programs, and institutions have wide variability in goals, definitions, and community needs for increasing diversity, shared resources should be available for mission-aligned entities, with specialty-specific contributions including successful strategies and ongoing challenges. This recommendation is intended for specialty organizations to specifically address diversity, equity, and inclusion in specialty-specific disparities in recruitment.

Recommendation:
18. In order to eliminate systemic biases in grading, medical schools must perform initial and annual exploratory reviews of clinical clerkship grading, including patterns of grade distribution based on race, ethnicity, gender identity/expression, sexual identity/orientation, visa status, ability, and location (e.g., satellite or clinical site location), and perform regular faculty development to mitigate bias. Programs across the UME-GME continuum should explore the impact of bias on student and resident evaluations, match results, attrition, and selection to honor societies, such as Alpha Omega Alpha and the Gold Humanism Honor Society.

Narrative description of recommendation:
Recognizing that inherent biases exist in clinical grading and assessment in the clinical learning environment, each UME and GME program must have a continuous quality improvement process for evaluating bias in clinical grading and assessment and the implications of these biases, including honor society selection. This recommendation is intended to mitigate bias based on clinical grading, transcript notations, MSPE reflections of remediation, and residency evaluations that may be influenced by bias.

Recommendation:
19. A committee must be formed to explore the growing number of unmatched physicians in the context of a national physician shortage, including root causes, and disparities in unmatched students based on specialty, demographic factors, and grading systems. The committee should report on data trends, implications, and recommended interventions.

Narrative description of recommendation:
The growing number of unmatched physicians necessitates analysis and strategic planning to address root causes. This analysis should include demographic data to examine diversity, specialty disparities in unmatched students, number of applications, grading systems, participation in SOAP, post-SOAP unmatched candidates, and match rate in subsequent years of re-entering the match pool. This recommendation is intended to urge UME programs and institutions to have a continuous quality improvement approach by reviewing unmatched graduates for specialties, demographics, number of programs applied to, and clinical grading; to offer alternative pathways; and add faculty development for

clinical advising. Ideally shared resources and innovation across the continuum would be identified and disseminated.

Theme: Application Process

Recommendation:
20. A comprehensive database with verifiable residency program information should be available to all applicants, medical schools, and residency programs and at no cost to the applicants.
Narrative description of recommendation:
Verifiable and trustworthy residency program information should be developed and made available in an easily accessible database to all applicants. Information for the database should be directly collected and sources should be transparent. Data must be searchable and allow for data analytics to help with program decision making (e.g., allowing applicants to input components of their individual application to identify programs with similar current residents).

Recommendation:
21. Create a widely accessible, authoritative, reliable, and searchable dataset of characteristics of individuals who applied, interviewed, were ranked, and matched for each GME program/track to be used at no cost by applicants, and by their advisors. Sort data according to medical degree, demographics, geography, and other characteristics of interest.
Narrative description of recommendation:
The Residency Explorer tool currently allows applicants to compare their characteristics to those of recent residents attending each GME program. These data could be more robust by providing users with more detailed information about each program's selection process. Each program's interviewed or ranked applicants reflect the program's desired characteristics more accurately than the small proportion of applicants the program matches. Applicants and advisors should be able to sort the information according to demographic and educational features that may significantly impact the likelihood of matching at a program (e.g., geography, scores, degree, visa status, etc.).

Recommendation:
22. To optimize utility, discrete fields should be available in the existing electronic application system for both narrative and ordinal information currently presented in the MSPE, personal statement, transcript, and letters. Fully using technology will reduce redundancy, improve comprehensibility, and highlight the unique characteristics of each applicant.
Narrative description of recommendation:
Optimally, each applicant will be reviewed individually and holistically to evaluate merit. However, some circumstances may require rapid review. The 2020 NRMP program directors' survey found that only 49% of applications received an in-depth review. The application system should utilize modern technology to maximize the likelihood that applications are evaluated in a way that is holistic, mission-based, and equitable.
Currently, applications are assessed based on the information that is readily available, which may place undue emphasis on scores, geography, medical school, or other factors that perpetuate bias. Adding concrete data gives an opportunity for applicants to demonstrate their strengths in a way that is user-friendly for program directors. Maximizing the amount of accurate information readily available in the application will increase capacity for holistic review of more applicants and improve trust during the UME to GME transition. Although not all schools and programs will align on which information should be included, areas of agreement should be found and emphasized.

Recommendation:

23. Filter options available to programs for sorting applicants within the application system should be carefully created and thoughtfully reviewed to ensure each one detects meaningful differences among applicants and promotes review based on mission alignment and likelihood of success at a program.

Narrative description of recommendation:

Residency programs receive more applications than they can meaningfully review, and applications may lack details that would help to differentiate between similar candidates. For this reason, filters are sometimes used to identify candidates that meet selection criteria. However, some commonly used filters may exclude applicants who are not meaningfully different from ones who are included. All applications should be evaluated fairly, independent of software idiosyncrasies. Each filter that is offered should align with the missions and requirements of residency programs. Filters with known bias (such as honor society and score filters) should be carefully monitored, especially as score reporting changes put some applicants at risk of inequitable consideration due to the timing of their test administration.

Recommendation:

24. To promote equitable treatment of applicants regardless of licensure examination requirements, comparable exams with different scales (COMLEX-USA and USMLE) should be reported within the ERAS filtering system in a single field.

Narrative description of recommendation:

Osteopathic medical students make up 25% of medical students in U.S. schools and these students are required to complete the COMLEX-USA examination series for licensure. Residency programs may filter out applicants based on their USMLE score leading many osteopathic medical students to sit for the USMLE series. This creates substantial increase in cost, time, and stress for osteopathic students who believe duplicate testing is necessary to be competitive in the Match. A combined field should be created in ERAS which normalizes the scores between the two exams and allows programs to filter based only on the single normalized score. This will mitigate structural bias and reduce financial and other stress for applicants.

Theme: Interviewing

Recommendation:

25. Develop and implement standards for the interview offer and acceptance process, including timing and methods of communication, for both the learners and programs to improve equity and fairness, to minimize educational disruption, and improve wellbeing.

Narrative description of recommendation:

The current process of extending interview offers and scheduling interviews is unnecessarily complex and onerous, and there is little to no regulation of this process. Applicant stress and loss of rotation education while attempting to conform to some processes (e.g., obsessively checking emails to accept short-timed interview offers) can be improved by implementing process improvements to the application platform, policies, and procedures. Development of a common interview offering/scheduling platform and setting policies to this platform, such as a residency programs inability to over offer/over schedule interviews and set inappropriate time-based applicant replies, would result in important improvements.

Recommendation:

26. Interviewing should be virtual for the 2021-2022 residency recruitment season. To ensure equity and fairness, there should be ongoing study of the impact and benefits of virtual interviewing as a permanent means of interviewing for residency.

Narrative description of recommendation:

Virtual interviewing has been a phenomenal change to control applicant expenses. With elimination of travel, students have been able to dedicate more time to their clinical education. Due to the risk of inequity with hybrid interviewing (virtual and in person interviews occurring in the same year or same program), all interviews should be conducted virtually for the 2021-2022 season. The committee also recommends a thorough exploration of the data around virtual interviewing. Candidate accessibility, equity, match rates, and attrition rates should be evaluated. Residency program feedback from multiple types of residencies should be explored. In addition, the separation of applicant and program rank order list deadlines in time should be explored, as this would allow students to visit programs without pressure and minimize influence on a program's rank list.

Recommendation:

27. Implement a centralized process to facilitate evidence-based, specialty-specific limits on the number of interviews each applicant may attend.

Narrative description of recommendation:

Identify evidence-based, specialty-specific interview caps, envisioned as the number of interviews an applicant attends within a specialty above which further interviews are not associated with significantly increased match rates, across all core applicant types. Standardize the interview offer, acceptance, and scheduling workflow. Create a centralized process to operationalize interview caps, which could include an interview ticket system or a single scheduling platform.

Theme: Matching Process

Recommendation:

28. To promote holistic review and efficiency, utilize the best available modeling and data to redesign the mechanics of the residency application process. The redesigned process – such as an optional early decision application cycle and binding match – must reduce application numbers while concentrating applicants at programs where mutual interest is high.

Narrative description of recommendation:

Application inflation is a root cause of the current dysfunction in the UME-GME transition. The current high cost of the application process (to applicants and program directors) does not serve the public good. The 2020 NRMP program director survey found that only 49% of applications received an in-depth review. An unread application represents wasted cost to the applicants and doubling the resources available for review is not practical. Optimal career advising may not be sufficient to reduce application numbers in the context of a very high stakes process. Despite increased transparency in characteristics of matched applicants, the number of applications per applicant continues to rise.

Following careful review of all available data and modeling information, one of several potential options must be taken to reduce the number of applications submitted per position. Outcomes must be carefully monitored. For example, a new optional "early decision" application cycle and binding match is envisioned where applicants may apply in only one specialty, and application numbers and available positions are constrained. An iterative, continuous quality improvement approach is envisioned that begins relatively conservatively, and is adjusted annually as needed, based on process and outcome measures (i.e., stakeholder experience, match rate, rank list position to match for both applicants and programs, equity for underrepresented groups and programs). An early match may be preferable to other interventions, especially if a conservative initial approach is used, to limit legal challenges and impact on special populations.

Theme: Faculty Support Resources
Recommendation:
29. Develop a portfolio of evidence-based resident support resources for program directors (PDs), designated institutional officials (DIOs), and residency programs. These will be identified as best practices, and accessible through a centralized repository.
Narrative description of recommendation:
A centralized source of resident support resources will assist programs with effective approaches to address resident concerns. This will be especially relevant for competency-based remediation and resident wellbeing resources in the context of increased demand for support around the UME-GME transition. Access for programs and program directors will be low/no cost, confidential, and straightforward.
Recommendation:
30. Educators across the continuum must receive faculty development regarding anti-racism; avoiding bias; and improving equity in student and resident recruitment, mentorship and advising, teaching, and assessment.
Narrative description of recommendation:
Avoiding bias and improving racial equity are essential skills for faculty in today's teaching. Many faculty lack these skills, and that lack perpetuates health disparities, lack of diversity, and learner mistreatment. This faculty development must be longitudinal and repeated annually.
Post-Match Transition to Residency
Recommendation:
31. Anticipating the challenges of the UME-GME transition, schools and programs should ensure that time is protected, and systems are in place, to ensure that individualized wellness resources – including health care, psychosocial supports, and communities of belonging – are available for each learner.
Narrative description of recommendation:
Given that the wellness of each learner significantly impacts learner performance, it is in the program and public's best interest to ensure the learner is optimally prepared to perform as a resident. This should be focused on applying resources that are already available and not dependent on the creation of new resources. Examples of wellness resources include: enrollment in insurance, establishing with a primary care provider and dentist, securing a therapist if appropriate, identifying local communities of belonging, and other supports that optimize wellbeing. These resources may especially benefit the most vulnerable trainees.
Recommendation:
32. Using principles of inclusive excellence, program directors, programs, and institutions must incorporate activities in diversity, equity, and inclusion for faculty, residents, and staff beginning in orientation and ongoing, in order to promote belonging, eliminate bias, and provide social support.
Narrative description of recommendation:
Recognizing that the ACGME Common Program Requirements already have specific requirements in this area, this recommendation is intended to specifically state how important it is to address issues related to DEI for all members of the educational community.

Recommendation:

33. Specialty-specific, just-in-time training must be provided to all incoming first-year residents, to support the transition from the role of student to a physician ready to assume increased responsibility for patient care.

Narrative description of recommendation:

The intent of this recommendation is to level set incoming intern performance regardless of medical school experience. Recent research has shown that residents reported greater preparedness for residency if they participated in a medical school "boot camp," and participation in longer residency preparedness courses was associated with high perceived preparedness for residency. This training must incorporate all six specialty milestone domains and be conducive to performing a baseline skills assessment. These curricula might be developed by specialty boards, specialty societies, or other organized bodies. To minimize costs, specialty societies could provide centralized recommendations and training could be executed regionally or through online modules.

Recommendation:

34. Residents must be provided with robust orientation and ramp up into their specific program at the start of internship. In addition to clinical skills and system utilization, content should include introduction to the patient population, known health disparities, community service and engagement, faculty, peers, and institutional culture.

Narrative description of recommendation:

Improved orientation to residency has the ability to enhance trainee well-being and improve patient safety. Residents should have orientation that includes not only employee policies but also education that optimizes their success in their specific clinical environment. Residents, like other employees, should be paid for attending orientation.

Recommendation:

35. A specialty-specific, formative, competency-based assessment that informs the learner's individualized learning plan (ILP) must be performed for all learners as a baseline at the start of internship.

Narrative description of recommendation:

An assessment of learner competence must be deployed at the start of internship to assess the competencies outside of medical knowledge in a specialty-specific manner. This assessment should be managed by the GME side to ensure authentic assessment and to provide feedback to UME agencies. This assessment must incorporate the five specialty milestone domains beyond medical knowledge. This assessment might be developed by specialty boards, specialty societies, or other organized bodies. Cost to students must be minimized.

This is envisioned as an "In-Training Examination" (ITE) experience early in internship that is based on the five specialty milestone domains beyond medical knowledge. The time for this experience should be protected in orientation, and the feedback should be formative similar to how most programs manage the results of ITEs.

This assessment might occur in the authentic workplace and based on direct observation, or might be accomplished as an Objective Structured Clinical Exam using simulation. This assessment should inform the learner's ILP and set the stage for the work of the clinical competency committee of the program.

Recommendation:

36. Early and ongoing specialty-specific resident assessment data should be automatically fed back to medical schools through a standardized process to enhance accountability and continuous improvement of UME programs and learner handovers.

Narrative description of recommendation:
Instruments for feedback from GME to UME should be standardized and utilized to inform gaps in curriculum and program improvement. UME institutions should respond to the GME feedback on their graduates' performance in a manner that leads to quality improvement of the program.

Recommendation:
37. Adequate and appropriate time must be assured between graduation and learner start of residency to facilitate this major life transition.

Narrative description of recommendation:
The transition from medical school to residency typically marks a concrete transition from paying for one's education to becoming a fulltime employee focused on one's lifelong pursuit of improvement in one's occupation. This transition is life changing for many. It often requires a move from one location to another, sometimes across the world. There must be time for licensing and in some cases, visa attainment. Often this life transition is accompanied by other major life events such as partnering or child-bearing. Once residency starts the learner may work many hours each week and may have little time to establish a home. Thus, it is important for wellness and readiness to practice that adequate time be provided to accomplish this major life transition.

The predictability of this transition must be recognized by both UME and GME institutions, and cooperation on both sides is required for this transition to be accomplished smoothly. There is a desire to overall better prepare learners for the start of residency, and an assured transition time would allow related recommendations to be more easily accomplished.

Recommendation:
38. All learners need equitable access to adequate funding and resources for the transition to residency prior to internship launch.

Narrative description of recommendation:
As almost every learner graduating from medical school transitions to internship, the need to fund a geographic move and establishment of a new home is predictable. This financial planning should be incorporated into medical school expenses, for example through equitable low interest student loans. Options to support the transitional expenses of international medical graduates should also be identified. These costs should not be incurred by GME programs.

Theme: Policy Implications

Recommendation:
39. There should be a standardized process throughout the United States for initial licensing at entrance to residency in order to streamline the process of credentialing for both residency training and continuing practice.

Narrative description of recommendation:
To benefit the public good, costs to support the U.S. healthcare workforce should be minimized. To this end, all medical students should be able to begin licensure earlier in their educational continuum to better distribute the work burden and costs associated with this predictable process. When learners are applying to match in many different states the varied requirements are unnecessarily cumbersome. Especially for states where a training license is required, the time between Match Day and start of internship is often not long enough to manage this process This is a potential cost saving measure.

Recommendation:

40. Recommend to the U.S. Centers for Medicare and Medicaid Services (CMS) that they change the current GME funding structure so that the Initial Residency Period (IRP) is calculated starting with the second year of postgraduate training. This will allow career choice reconsideration, leading to resident wellbeing and positive effects on the physician workforce.

Narrative description of recommendation:

Given the timing of the residency recruiting season and the Match, students have limited time to definitively establish their specialty choice. If a resident decides to switch to another program or specialty after beginning training, because of the IRP the hospital may not receive full funding and thus be far less likely to approve such a change. The knowledge that residents usually only have one chance to choose a specialty path increases the pressure on the entire UME-GME transition. Furthermore, educational innovation is limited without flexibility for time-variable training.

Theme: Research Questions

Recommendation:

41. To guide future improvements in resident selection and transition, conduct research to understand which residency applicant characteristics, residency curriculum experiences, and learning environment factors are most likely to translate into physicians who fulfill the specialty specific physician workforce needs of the public (e.g., primary care, demographics, geographic distribution).

Narrative description of recommendation:

Graduates of U.S. medical schools fill many residency positions, which means GME will be limited by the decisions made by medical school admissions committees. However, non-U.S. graduates are also considered at many programs, providing an opportunity to serve the public good. Additional research is needed to help program directors understand which applicant characteristics are useful indicators to address on-going medical workforce issues. Further changes to the transition should be informed by evidence whenever possible.

Recommendation:

42. Build consensus around the components of a successful recruitment cycle, utilizing input from all stakeholders. Identify which characteristics of applicants and programs predict a successful recruitment cycle outcome.

Narrative description of recommendation:

Currently, the medical education community lacks a shared mental model of what constitutes a successful transition from UME to GME, and also what factors predict that success. The lack of agreement leads to conflict over the content of applications as well as the resources required for a recruitment cycle. Success could include simple educational outcomes such as completing training, board certification, or lack of remediation. Alternatively, applicant-specific factors may be more important, such as likelihood of picking the same program. The success may be defined solely on the public good, based on fill rate of programs and how many physicians practice in underserved areas. Or, it may be that a successful match is institutionally specific based on its mission and community served, with some institutions focused on research and others on rural communities. Regardless, the factors associated with success must be understood so they can be appropriately emphasized in the UME-GME transition, especially as changes are made to the process.