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Exploring Competency-Based Medical Education Through the Lens of the UME–GME Transition: A Qualitative Study

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Abstract

Purpose

Competency-based medical education (CBME) represents a shift to a paradigm with shared definitions, explicit outcomes, and assessments of competence. The groundwork has been laid to ensure all learners achieve the desired outcomes along the medical education continuum using the principles of CBME. However, this continuum spans the major transition from undergraduate medical education (UME) to graduate medical education (GME) that is also evolving. This study explores the experiences of medical educators working to use CBME assessments in the context of the UME–GME transition and their perspectives on the existing challenges.

Method

This study used a constructivist-oriented qualitative methodology. In-depth,

semistructured interviews of UME and GME leaders in CBME were performed between February 2019 and January 2020 via Zoom. When possible, each interviewee was interviewed by 2 team members, one with UME and one with GME experience, which allowed follow-up questions to be pursued that reflected the perspectives of both UME and GME educators more fully. A multistep iterative process of thematic analysis was used to analyze the transcripts and identify patterns across interviews.

Results

The 9 interviewees represented a broad swath of UME and GME leadership positions, though most had an internal medicine training background. Analysis identified 4 overarching themes: mistrust (a trust chasm exists between UME and

GME); misaligned goals (the residency selection process is antithetical to CBME); inadequate communication (communication regarding competence is infrequent, often unidirectional, and lacks a shared language); and inflexible timeframes (current training timeframes do not account for individual learners' competency trajectories).

Conclusions

Despite the mutual desire and commitment to move to CBME across the continuum, mistrust, misaligned goals, inadequate communication, and inflexible timeframes confound such efforts of individual schools and programs. If current efforts to improve the UME–GME transition address the themes identified, educators may be more successful implementing CBME along the continuum.

The concept of competency-based medical education (CBME), which was discussed as early as 1978,¹ shifts the

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paradigm of medical education from a structured, time-based process to one with shared definitions, explicit outcomes, and assessments of competence.^{2–4} Fully realized, CBME should reduce variability in the quality of graduating physicians, while allowing training to progress at a pace appropriate to each individual learner.

Theory has moved to practice over the last few decades, with the work of Olle ten Cate on entrustable professional activities informing efforts in the United States to implement CBME at the medical school level.⁵ Using this approach, a pilot group of the Association of American Medical Colleges (AAMC) published the Core Entrustable Professional Activities for Entering Residency (Core EPAs) in 2014.⁶ This work articulates 13 activities that integrate multiple competencies that students should be entrusted to do with minimal supervision by the time they

enter residency. These EPAs have been adopted, modified, and expanded by many U.S. medical schools. The efforts of the Core EPA pilot have guided widespread changes in curriculum, assessment, and faculty development, accelerating the adoption of CBME as the dominant educational paradigm in U.S. medical schools, with each medical school individualizing their EPAs to suit their curriculum and context.⁷

The adoption of CBME in U.S. residency education differs substantially from the undergraduate medical education (UME) experience. The Accreditation Council for Graduate Medical Education (ACGME) was an earlier champion for the implementation of CBME.³ Beginning in 1998, the ACGME sought to improve outcomes for residency training through the development of 6 core competencies through its Outcomes Project, which led to the ACGME instituting milestones in

2012. Milestones use a multistage model of professional development and provide descriptive, longitudinal narratives for each of the core competencies. Milestones “create a logical trajectory of professional development in essential elements of competency” and provide a “measurable framework of specialty-specific outcomes.”^{3,8} The development of the milestones was collaborative and engaged diverse important stakeholders. The ACGME mandate to implement the milestones in 2012 led to a more rapid universal adoption of the CBME paradigm in graduate medical education (GME) than what has occurred in UME. Moreover, there exists a degree of uniformity in the language used across residency programs to describe competence that is not as apparent among medical schools. Thus, the ACGME has garnered a decade of experience in implementing a CBME-informed approach in GME. Beginning in 2018, this experience was used to further refine and harmonize the milestones (Milestones 2.0).⁸

Thus, the groundwork has been laid to ensure all learners achieve the desired outcomes along the educational continuum from medical school through independent practice using the principles of CBME. However, this continuum spans the major transition from UME to GME, a process that is in itself evolving, intensifying, and becoming increasingly complicated.⁹ Since 1996, students apply to U.S. residency programs through the AAMC’s Electronic Residency Application System (ERAS) platform. They complete applications at the beginning of the fourth year of medical school. Next, residency programs review applications and then invite selected students to interview. Then, both students and programs submit a rank-ordered preference list to the National Resident Matching Program, which matches students to programs. A variety of forces have spawned significant increases in the cost, time, and angst for both students and programs during this process.¹⁰

The data provided in this process include the Medical School Performance Evaluation (MSPE), United States Medical Licensing Examination scores, letters of recommendation, departmental letters, and student personal statements. If a school uses grades or class rank, these data will be included as well. This kind of

data would be considered “normative data” in which a student is compared to other students rather than to a competency standard. Student performance data from most of the fourth year of medical school are not available and are not currently required for the residency selection process.¹¹ This process has come to consume a disproportionate share of student and faculty attention and time during that final year of medical school. The number of applications processed through ERAS has increased by over 50% from 2005 to 2015,⁹ outstripping the ability of graduate medical educators to holistically assess candidates’ suitability to their programs.

This onerous, anxiety-ridden transition promotes the overemphasis of metrics such as exam scores and grades, even as medical educators wish to commit themselves to a CBME process that values metrics that better align with patient needs and improved outcomes.^{10,12} In 2018, the escalation of tensions wrought by the residency selection process compelled the Coalition for Physician Accountability (CoPA) to form the Undergraduate Medical Education–Graduate Medical Education Review Committee (UGRC), which was charged with crafting recommendations to improve the system for the UME–GME transition.¹³ Their recommendations, released in 2021, are aimed at guiding modifications to the transition process in a positive direction.¹⁴ The impact of the current state of the UME–GME transition on CBME efforts adds urgency and importance to the work of the UGRC.

The transition from UME to GME can be seen as a gap in CBME. To date, analysis of the experience and impact of the UME–GME transition on CBME has been largely based on expert opinions, perspectives, and commentaries without formal research exploring the lived experiences of key stakeholders. For example, in a 2018 commentary, Kogan et al¹⁵ identified the regulatory, financial, and accreditation standards that would require modification for successful implementation of CBME across the medical education continuum. The current study is a qualitative exploration of the experiences of medical educators working to use CBME assessments in the context of the UME–GME transition and their perspectives on the existing challenges.

Method

The research team

The research team members represent a balance of UME and GME internal medicine educators from 12 university- and community-based programs. All members of the team had prior experience and interest in CBME within their own institutions. The team was interested in elucidating the general experiences of UME and GME educators charged with operationalizing CBME specifically in relation to the UME–GME transition.

Study design

The research team met monthly between 2018 and 2021 via Zoom (Zoom Video Communications, Inc., San Jose, California). The research question and methodology were agreed on by the team.^{16,17} Using a constructivist-oriented qualitative methodology allowed the team to explore the opportunities and challenges existing for educators currently trying to use CBME during the UME–GME transition.¹⁸ Semistructured interviews enabled interviewers to more fully probe about unique innovations, experiences, and obstacles as they were mentioned during the interviews. This approach was chosen over focus groups because of the desire to explore the individual experiences of educators in depth. A multistep iterative process of thematic analysis was used to analyze the transcripts and identify patterns across interviews.¹⁹ Steps included familiarization with data, generation of initial codes, identification of preliminary categories, searching for themes, reviewing and redefining themes, and mapping relationships among themes.

Recruitment

The research team generated a representative list of UME and GME leaders in CBME through outreach to 2 of the constituent organizations of the Alliance for Academic Internal Medicine (AAIM)—the Association of Program Directors in Internal Medicine and Clerkship Directors in Internal Medicine—and based on individuals who had published on innovations in CBME. The aim was to identify interviewees who were actively working at a national and/or local level operationalizing CBME at the UME–GME transition. Individuals having such experience were approached

via email and asked to participate from 2018 to 2019. Nine educators consented and completed a brief electronic demographic information questionnaire about themselves. GME participants had backgrounds in internal medicine. UME participants had training backgrounds across a variety of specialties.

Data collection

Supplemental Digital Appendix 1 (at <http://links.lww.com/ACADMED/B469>) illustrates the key research steps undertaken for data collection and analysis.

The team collaborated to develop the interview guide (see Supplemental Digital Appendix 2 at <http://links.lww.com/ACADMED/B469>). The questions in the guide were designed to elucidate how interviewees innovated and implemented CBME at their own institutions, then progressed to ask about the opportunities and challenges of competency-based assessment during the UME–GME transition. The guide was piloted with 2 educators whose data were not analyzed for the study. The team examined the transcripts to refine the question prompts included in the guide and to determine the approximate duration for each interview. The interviews were performed in between February 2019 and January 2020, and each interview lasted

approximately 60 minutes. When possible, each interviewee was interviewed by 2 members of the research team, one with UME and one with GME experience. Occasionally a third team member would participate to learn the process. This interview structure allowed follow-up questions to be pursued that reflected the perspectives of both UME and GME educators more fully. Interviews were conducted and recorded via Zoom (Zoom Video Communications, Inc., San Jose, California). Audio recordings were transcribed verbatim for analysis.

Data analysis

Identification of themes was achieved through an iterative review of the narrative transcripts.¹⁹ The first 3 interviews were analyzed by 5 research team members (M.Z., S.F., A.O., B.D., Christopher M. Williams). Each team member individually reviewed transcripts and assigned preliminary codes to the data, then met to synthesize their findings. During that discussion, they organized the codes that emerged from data into 5 general categories: challenges, opportunities, prerequisites, description, and innovations. For example, the code “grades” fell under the category “challenges.” This discussion led to the development of a coding sheet (see Supplemental Digital Appendix 3 at

<http://links.lww.com/ACADMED/B469>). The first 3 interviews were recoded using this coding sheet. Each of the remaining interviews was reviewed and coded by groups of researchers (H.S.L.-F., L.J.N., and S.A. reviewed interviews 4–6; Cynthia H. Ledford, B.D., and A.A. reviewed interviews 7–9). The members of these groups individually reviewed transcripts, coded them using the coding sheet, and then met to reconcile their codes. In this manner, a single set of codes for each transcript was generated and quotes that represented those codes were identified.

A final group of the team (J.H.C., J.P.M., E.M.) reviewed the coding for each transcript and identified 4 overarching themes. These quotes within these themes reflect the 5 initial categories. The significance of each theme was represented by how often codes in the theme appeared across transcripts.

After initial analysis of the first 8 interviews, we reached saturation of themes. We then recognized a potential gap in representation from community-based residency programs and decided to conduct an additional interview. Analysis of this additional interview failed to demonstrate any novel themes; thus, no further interviews were conducted. In a final meeting of all research team members, results were

Table 1
Demographics of Interviewees in a 2018–2021 Qualitative Study Exploring the Experiences of Medical Educators Working to Use CBME Assessments in the Context of the UME–GME Transition and Their Perspectives on the Existing Challenges

Interview no.	Academic role	Academic rank	Background	UME time	GME time	Interviewers ^a	Coders ^b
1	Program director	Associate professor	Internal medicine	NA	100%	E.M., C.H.L., M.Z.	M.Z., S.F., A.O., B.D., C.M.W.
2	Associate dean	Professor	Internal medicine	70%	15%	M.Z., E.M., C.H.L.	M.Z., S.F., A.O., B.D., C.M.W.
3	Associate dean	Professor	Internal medicine	40%	60%	E.M.	M.Z., S.F., A.O., B.D., C.M.W.
4	Department chair	Professor	Internal medicine	5%	10%	E.M., M.Z., B.D.	H.S.L.-F., L.J.N., S.A.
5	Director of assessment and evaluation	Professor	PhD	100%	NA	E.M., C.H.L., J.P.M.	H.S.L.-F., L.J.N., S.A.
6	Associate dean	Professor	Surgery	75%	25%	E.M., M.Z.	H.S.L.-F., L.J.N., S.A.
7	Program director	Associate professor	Internal medicine	25%	75%	M.Z., E.M.	C.H.L., B.D., A.A.
8	Program director	Associate professor	Internal medicine	3%	97%	L.J.N., S.A.	C.H.L., B.D., A.A.
9	Program director	Professor	Internal medicine	30%	70%	J.P.M., J.H.C.	C.H.L., B.D., A.A.

Abbreviations: CBME, competency-based medical education; UME, undergraduate medical education; GME, graduate medical education; NA, not applicable.

^aMembers of the research team who conducted the interview. C.H.L. is Cynthia H. Ledford. All other individuals are authors.

^bMembers of the research team who analyzed and coded the transcripts of the interview. C.M.W. is Christopher M. Williams. All other individuals are authors.

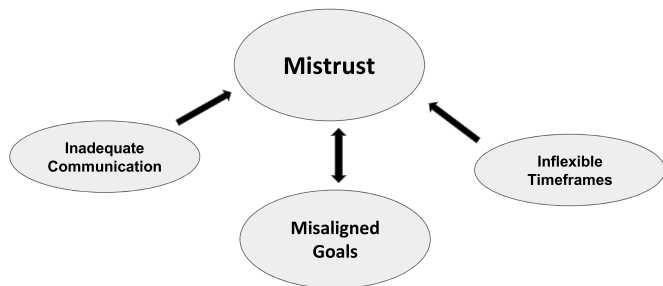


Figure 1 Schematic view of the 4 overarching themes found in a 2018–2021 qualitative study exploring the experiences of medical educators working to use competency-based medical education assessments in the context of the undergraduate to graduate medical education transition and their perspectives on the existing challenges. The height of a circle correlates to the frequency with which a theme occurred across interviews. The arrows represent the relationships between themes.

reviewed and the relationships among themes were agreed on.

The Michigan State University Institutional Review Board reviewed this study and deemed it exempt (STUDY00000354).

Results

The 9 members of the UME and GME community who agreed to participate and were interviewed represented a broad swath of UME and GME leadership positions (Table 1), though most had an internal medicine training background. Four had leadership roles in UME and 5 in GME. Eight of the participants had educational responsibilities in both UME and GME. Two interviewees represented programs in the AAMC’s Core EPAs pilot. Two interviewees were participants in the Internal Medicine Milestone Project, the joint initiative of the ACGME and American Board of Internal Medicine. Two held national roles in CBME and assessment in both UME and GME at the time they were interviewed. Two interviewees represented GME programs that recruited students from international medical schools, and 1 interviewee represented a medical school that began within the last 10 years. Analysis of the 9 interviews identified 4 overarching themes: (1) mistrust (a trust chasm exists between UME and GME); (2) misaligned goals (the residency selection process is antithetical to CBME); (3) inadequate communication (communication regarding competence is infrequent, often unidirectional, and lacks a shared language); and (4) inflexible time frames (current training time frames do not account for individual learners’ competency trajectories). Each theme is discussed below, and the

relationships between them are represented in Figure 1. Figure 2 provides exemplar quotes supporting each of the themes.

Mistrust

A trust chasm exists between UME and GME. Interviewees universally brought up the issue of trust without prompting. UME and GME had different reasons for mistrust. GME program directors believed that medical schools withhold or misrepresent data related to their students during their application to residency programs. For example, as one interviewee noted,

If you’ve had the resident struggle, which I have; then, you go back to the medical school file. You try to find anything in there that says, “This is what they struggle with.” You never ever see it. Like 0% of the time in my 22 years.... (Interview 7)

Many program directors commented that the new CBME narrative assessments in UME eliminated or obfuscated distinguishing details about applicants that were used for residency selection. Medical schools conversely expressed a belief that they could not divulge all data on a student’s developmental progression that might be useful to a future program director out of fear that program directors might use these data against students and not rank them. For example, one institution conducted a pilot project where they presented trainee competency data to program directors in their own institutions:

We put some different presentations in front of [program directors], and if it looked like anything less than perfect, [then program directors] were worried. If you flipped the data the right way, [those students] were right on target. And in some ways exceeding target... We can’t show any sign of weakness for any candidate, or they won’t be chosen, and so that’s left us at an impasse. (Interview 6)

As one interviewee summarized,

You have a conflict of interest if you are a medical school. You’ve got to get these people matched. And anything that might seem out of place is going to be assumed to be the tip of the iceberg. (Interview 7)

Misaligned goals

The goal of CBME is to both improve the quality and reduce variability in competence of graduating independent physicians. This is, of course, the ultimate

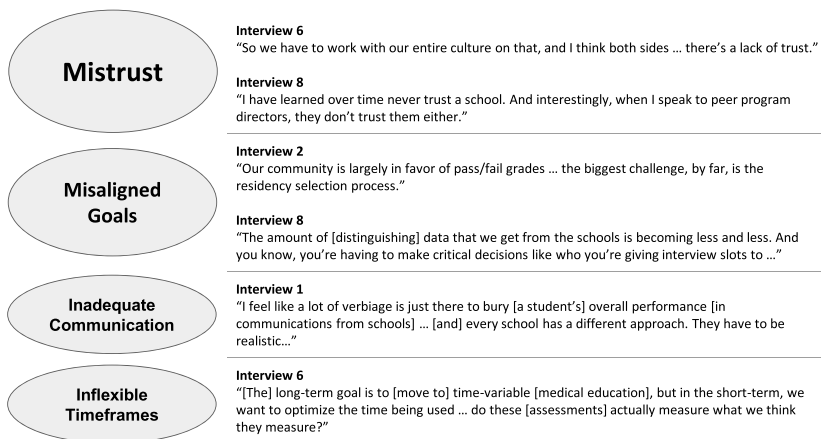


Figure 2 Exemplar quotes representing the 4 overarching themes found in a 2018–2021 qualitative study exploring the experiences of medical educators working to use competency-based medical education assessments in the context of the undergraduate to graduate medical education transition and their perspectives on the existing challenges. See Table 1 for information on the demographics of the interviewees, including time spent working in undergraduate and graduate medical education.

goal of both UME and GME educators. But at the time of residency selection, the more immediate goals of UME and GME change. Medical schools must ensure their students match into residency, and GME residency directors must ensure they have recruited a residency class that is able to succeed in their programs and specialties. Thus, the residency selection process is a moment in time when the goals of the UME and GME become misaligned.

CBME assessments evaluate student performance as it relates to a competency standard. The goal is not to assess a trainee's performance as it relates to other trainees at the same level. However, assessments that distinguish one student from another are important to residency directors trying to discern from many applicants those best poised to succeed in their programs and specialties or subspecialties. Thus, the residency selection process appears antithetical to the goals of CBME. Program directors expressed frustration when seeking discriminating information from the narrative data that are generated when using a CBME entrustment approach to assessment. One program director lamented,

The amount of [distinguishing] data we get from schools is becoming less and less. And you know, you're having to make critical decisions like who you're giving interview slots to, critical [decisions] about who you're matching and who you're not matching. (Interview 8)

The residency selection process creates a need for metrics that facilitate comparison to other students and not to a competency standard. Aware of this misalignment, one educator observed, "The residency selection process and residency programs, of course, want distinguishing information. And grades [are] an easy way to do that" (Interview 2). But grades cannot not reflect a student's developmental progression, which is the goal of CBME. "There is no normative within [narrative data]—it becomes normative only when you put two files together" (Interview 6).

Standardized exam scores are another non-CBME-based metric that compare one student's performance to another. For this reason, standardized exam performance takes on greater importance during residency selection. While

desiring this distinguishing data during residency selection, GME educators acknowledge the limitations of non-CBME assessment data. One program director interviewed admitted, "I think we have all encountered people who have terrific scores but could not reason their way out of a box" (Interview 1). Yet, it is a challenge to distinguish one residency applicant from another using CBME narrative assessments alone.

There was evidence that this misalignment was decelerating CBME implementation. In an institution that had eliminated clerkship grading, the interviewee commented,

Our community is largely in favor of pass/fail grades in the core clerkships...there's a lot of support for that here...the biggest challenge, by far, is the residency selection process.... We are continuing to have grades in the fourth-year rotations...so the students have time to do 3 or 4 of those before their application goes in. (Interview 2)

One interviewee compared the misaligned goals of UME or GME stakeholders to an impasse described by Game Theory²⁰: "[This] is probably a Nash equilibrium. A Nash equilibrium is when one party cannot change their outcome by unilaterally changing their position." (Interview 7). Indeed, we found that the stakeholders interviewed believed they could not unilaterally make fundamental changes without harming their own constituents.

Inadequate communication

Communication regarding competence across the transition is infrequent, is often unidirectional, and lacks a shared language. The primary route for communications about competence between medical schools and residency programs is the MSPE. The format of the MSPE and the variability of included information from school to school make it difficult to determine an individual student's competency attainment or to compare students from different schools: "I just don't find them as informative as they could be. I feel like a lot of the verbiage is just there to bury [a student's] overall performance." (Interview 1). This is compounded by the lack of any update in progress that was achieved after the MSPE was written at the end of the third year of medical school. This theme also

reflects a concern about a lack of information about further developmental progression toward competence achieved in the fourth year. During residency selection, program directors look at data across many schools, and this variation in representation of competence among schools amplifies mistrust. There is a perception that the observed variation serves no purpose other than to obfuscate students' overall performance. Additionally, UME directors expressed frustration about any lack of follow-up from residency programs about how their students performed during residency training.

Inflexible time frames

Current training time frames are inflexible for individual learners' competency trajectories. All participants noted that consistent with CBME, moving toward a more time-variable medical education structure was a goal. They also noted that the current window for residency selection presented a time-fixed structural demand that interviewees acknowledged to be beyond what could be addressed by any one institution. Interestingly, this theme interacted with the theme of mistrust. One educator mused that program directors might inappropriately interpret "time to achieving competence" as distinguishing data (Interview 6). Suggesting, those who achieve competence faster may signal inaccurately to program directors that these are stronger students. Those who take a little longer would be disadvantaged in the residency selection process. On the GME side, awareness of UME's structural time constraint further eroded credibility in CBME assessments.

Discussion

To understand our findings, it is best to view the UME-GME transition as having 2 components. There is an administrative residency selection component and an educational or professional development component. Holistic competency-based assessment data helps trainees and educators understand what a trainee has mastered and where they need to grow and improve. A program director assuming responsibility for the continued education of a trainee values such data. Yet, these narrative data are unwieldy and unworkable when used administratively for residency selection. Program directors

must review narrative descriptions of trainee competence from multiple schools and for thousands of applications. This presents a unique dilemma for CBME during the UME–GME transition. This fuels GME’s mistrust of UME’s narrative descriptions of competence. Similarly, UME has misgivings that GME will use assessment data inappropriately, adversely affecting students. A recent study of 250 participants representing UME and GME (e.g., leadership, faculty, medical students) focused on the UME–GME transition similarly found a lack of trust in the process.²¹ The UME–GME transition represents a point in time where the immediate goals of UME and GME are in conflict. This conflict also leads to misalignment of the processes used to guide students’ development into competent physicians and the process used to select residents. That is, the CBME assessments used to track and guide students’ progress often contain details that could disadvantage them when schools need to represent them as competitive candidates to prospective residency programs. This conflict impairs communication between UME and GME programs at this crucial point. Our interviewees universally perceived the administrative residency selection component and the educational or professional development component of the UME–GME transition to be at odds with one another. This is a sentiment that has been articulated in the current literature.²² Further, many of the themes and challenges elucidated in our interviews align with the 42 recommendations the UGRG presented to improve the UME–GME transition.¹⁴

The lack of trust expressed by UME and GME interviewees was the most dominant theme. Interestingly, questions about trust were not included in our interview guide yet came up organically during every interview. Most concerns related to trust were about GME participants feeling they could not trust that the information provided by medical schools was complete and accurate. They expressed concern that schools misrepresent student performance to ensure that all their students matched. UME participants, similarly, acknowledged feeling that they could not openly share all aspects of a student’s performance as GME programs might use formative information to an applicant’s disadvantage. The UGRG similarly

identified mistrust as a significant challenge for the UME–GME transition process in its 2021 report.¹⁴ The participants interviewed for our study provided examples where UME CBME innovations were stalled, modified, or rolled back because of concerns regarding the administrative residency selection component of the transition. Paradoxically, most interviewees had educational responsibilities in both UME and GME. This did not mitigate the mistrust experienced at the UME–GME transition point.

The theme of misaligned goals relates to the residency selection process being antithetical to CBME (although misaligned goals contribute to mistrust, this theme is unique). CBME shifts the focus away from assessing students in relation to their peers. Rather, CBME uses criterion-referenced assessments, such as EPAs, to promote students’ growth into competent physicians. GME requires more distinguishing information for residency selection to ensure a student can succeed in their specialty or subspecialty and at their institution.¹² GME educators acknowledge comparative data to be flawed but regard narrative data provided by a CBME entrustment approach as too variable and unwieldy to be useful. In the absence of distinguishing data, imperfect proxies are used. For progress on CBME implementation to occur, there will need to be collaborative discussion by all stakeholders to identify what distinguishing data are necessary to ensure trainees successfully continue their professional journey and how best to convey this in a manner that does not disadvantage residency applicants.

Communication about competence requires a shared mental model, shared language, and a uniform protocol and mechanism for consistent bidirectional communication. This is missing across UME institutions and between UME and GME. The American Medical Association’s Accelerating Change in Medical Education consortium discussed providing learner performance measures as part of a responsible educational handover from UME to GME and provided suggestions to improve communication through the transition.¹¹ The work of Wancata et al²³ provides a small-scale proof of concept for the implementation of such handoffs. This

group used the accepted ACGME surgical milestones to develop a professional handoff tool to surgical GME programs. This communication occurred post residency selection, thereby addressing the educational or professional development component of the transition independently of the administrative residency selection one. Emergency medicine’s Standardized Letter of Evaluation (EM’s SLOE) represents an effort to standardize competency communication early in residency selection, prior to the Match. This effort has harmonized competency language to a degree.²⁴ In response to the preliminary recommendations of CoPA, AAIM released summary guidelines for Internal Medicine Structured Evaluative Letters (IM SELs) in 2022.²⁵ To standardize competency-based language across the transition, the IM SEL requests that UME institutions assess trainees applying to internal medicine residency programs using the ACGME Internal Medicine Milestones.²⁶ The impact that these efforts might have on the themes identified in this study is not yet clear.

To fully achieve the goals of CBME, including time-variable medical education, will require intense cooperation across and throughout UME and GME to overcome the current inflexible time frames. Examples of success in this regard include the Education in Pediatrics Across the Continuum²⁷ and Consortium of Accelerated Medical Pathway Programs.²⁸ In different ways, these multi-institutional initiatives are experimenting with time-variable medical education across the continuum. Because the administrative residency selection component in these programs is so unique from the standard residency selection process, it will be interesting to learn how eliminating this component might impact the themes apparent in our study.

Our study is limited by the modest number of interviewees; however, there was significant similarity in the themes that emanated from the interviewees. This group represented individuals highly committed to the implementation of CBME; therefore, it can be hypothesized that the difficulties reflected by this group would be even greater in a larger sample that included institutions and programs

where CBME may be less accepted. The study is also limited by focusing on internal medicine, especially in GME. Both the research team and most of the interviewees had an internal medicine background. The prominence of each theme could have been affected by that background. However, the themes themselves are likely to be the same across specialties and subspecialties, as they also seem to be reflected in the recommendations of UGRG.¹⁴ Moreover, literature in emergency medicine, which reviewed the implementation of EM's SLOE, seems to reflect similar themes to those we discovered.^{24,29,30} This is likely because the structural factors that contribute to mistrust, misaligned goals, inadequate communication, and inflexible time frames are the same across the different specialties. The perspectives of program directors whose programs involve a preliminary training year followed by advanced training, however, may have differed from those we found, given that these programs have different application timelines and processes.

Conclusions

Acceptance of CBME during the UME–GME transition requires trust between UME and GME educators. Despite the mutually agreed on desire and commitment to move to CBME across the continuum, the themes of mistrust, misaligned goals, inadequate communication, and inflexible time frames confound such efforts of individual schools and programs. Viewing CBME innovations and assessments through the lens of this fraught transition alters perspectives, impairs acceptance, and impedes further innovation. If current efforts to improve the UME–GME transition address the themes identified in this study, educators may be more successful in implementing CBME along the continuum.

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