Advancing Competency-Based Medical Education: A Charter for Clinician–Educators

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Abstract

The International Competency-Based Medical Education (ICBME) Collaborators have been working since 2009 to promote understanding of competency-based medical education (CBME) and accelerate its uptake worldwide. This article presents a charter, supported by a literature-based rationale, which is meant to provide a shared mental model of CBME that will serve as a path forward in its widespread implementation.

At a 2013 summit, the ICBME Collaborators laid the groundwork for this charter. Here, the fundamental principles of CBME and professional responsibilities of medical educators in

its implementation process are described. The authors outline three fundamental principles: (1) Medical education must be based on the health needs of the populations served; (2) the primary focus of education and training should be the desired outcomes for learners rather than the structure and process of the educational system; and (3) the formation of a physician should be seamless across the continuum of education, training, and practice.

Building on these principles, medical educators must demonstrate commitment to teaching, assessing, and role modeling the range of

identified competencies. In the clinical setting, they must provide supervision that balances patient safety with the professional development of learners, being transparent with stakeholders about level of supervision needed. They must use effective and efficient assessment strategies and tools for basing transition decisions on competence rather than time in training, empowering learners to be active participants in their learning and assessment. Finally, advancing CBME requires program evaluation and research, faculty development, and a collaborative approach to realize its full potential.

Editor's Note: A Commentary by M.E. Whitcomb appears on pages 618–620.

The International Competency-Based Medical Education (ICBME) Collaborators have been working since 2009 to promote understanding of competency-based medical education (CBME) and accelerate its uptake worldwide. In 2009, the group assembled at a summit convened by the Royal College of Physicians and Surgeons of Canada, the outcome of which was a collection of scholarly papers published in a special issue of *Medical Teacher*[1] that has generated much dialogue over the ensuing years. An expanded group of ICBME Collaborators convened a second summit in October 2013, concluding with a commitment to make the leap from theory to practice by facilitating

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widespread implementation of CBME and contributing another collection of scholarly papers. In this article, we present a charter that builds on the discussions and scholarly works in progress of the second summit, which focused on standardizing language, implementing CBME across the educational continuum, advancing assessment strategies and requisite faculty development, and developing a research agenda. The work of the second summit built upon the 2009 summit. This charter was conceived to help the ICBME Collaborators forge a path toward the goal of widespread implementation of CBME and to invite the worldwide medical education community to travel with us on this journey. This charter for CBME also serves as an effort from the professional community to restore the trust of society in the health professions. Thus, we have based its framework on the medical professionalism charter spearheaded by the American Board of Internal Medicine.[2]

Background

Internationally, CBME is being adopted under a variety of frameworks, including CanMEDS,[3] the Accreditation Council

for Graduate Medical Education competencies,[4] the Scottish Doctor Outcomes,[5] and the Australian Curriculum Framework for Junior Doctors.[6] For the purposes of this charter, we adapt a definition of CBME recently proposed by ten Cate[7]: education for the medical professional that is targeted at a necessary level of ability in one or more medical competencies.

Since the introduction of CBME, many concerns have been raised about implementing a resource-intensive system of education and training that is as yet unproven as a means of producing better doctors.[8] However, if formal evidence of the effectiveness of CBME is lacking, we do have two bodies of knowledge that support the move to this model. First are sound advances in education theory that serve as the building blocks of CBME: the importance of clearly defined outcomes, learners taking an active role in their education and assessment within an authentic clinical setting, and formative and focused feedback from multiple assessors using multiple methods.[9,10] Second, we have ample proof that our current system falls short of producing

the best possible doctors: An Institute of Medicine (IOM) report,[11] the Canadian adverse events study,[12] and adverse events and near-miss reporting in the United Kingdom[13] have documented high rates of preventable medical errors. Although both the system and the individuals that make up that system share responsibility for adverse events, most would agree that, on the individual level, we have a long way to go toward producing physicians who are optimally prepared with the requisite competencies to be able to work as members and leaders of interprofessional teams to safely provide the complex care required in the 21st century.

Faculty, program directors, and learners alike are grappling with the challenges of implementing CBME. Major barriers to CBME implementation to date have included (1) the time- and resource-intensive nature of competence assessment, which requires direct observation by multiple assessors in multiple settings; (2) the need for faculty development in teaching and assessing the competencies; (3) a misalignment between learning environments and learners' chosen practice environments; (4) the logistical challenges of introducing competency-based advancement into a traditionally time-based system (where advancement is primarily based on satisfactory completion of medical school and prescribed number of years of specialty training); and (5) limited investment in health professions education, which accounts for less than 2% of expenditures globally in the health care industry.[8,14,15]

Our call for the widespread implementation of CBME is matched by an equally fervent call to study both the process and outcomes of implementation. We need to demonstrate to the public and the medical education community that CBME does no harm, is based on sound educational theory, and contributes to the professional formation of physicians who embody the habits of working to improve patient and population care as well as systems of care. Only then will we have answered the call to action laid out by the IOM report over 15 years ago.[11] Given our shared goal to implement CBME across countries and continents, and our ability to learn collectively from the universal barriers that we face in doing so, a logical next step is to develop a shared

mental model of what implementation of CBME would look like, chart the course, and begin the journey together.

The CBME Charter

Preamble

Frank et al[16] have proposed the following description of competency-based education for medical education:

> Competency-based education (CBE) is an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It de-emphasizes time-based training and promises greater accountability, flexibility, and learner-centeredness.

Moving from description and theory to broad implementation will require the medical education community to adhere to some fundamental principles and to make some stalwart commitments, as outlined below. These principles and commitments build on the foundations of CBME supported by the literature, as well as most current thinking that is emerging from the literature, the work and scholarship resulting from the two ICBME summits, and consensus of the ICBME Collaborative.

Fundamental principles

The following principles must serve as the foundation for the implementation of CBME.

Education must be based on the health needs of the populations served. Until the shift to CBME around the turn of the 21st century, the education and training of physicians in the United States and Canada generally followed the Flexnerian tradition[17] for undergraduate medical education (UME), in which two years of basic science immersion were followed by two years of clinical experience; other countries used similar structures.[18] Experts within specialties likewise formulated blueprints for graduate medical education (GME). The deficiencies that resulted from this education and training experience were explicitly brought to light by reports on quality gaps and medical errors.[11–13,19] CBME, by contrast, "is a disciplined approach to specify the health problems to be addressed, identify the requisite competencies required of graduates for health-system performance, tailor the

curriculum to achieve competencies, and assess achievements and shortfalls."[14] CBME requires the ongoing reassessment of competencies to ensure their alignment with local population and system needs, which vary widely within countries and dramatically across the globe.[20] The importance of this principle is supported by the "triple aim" of Berwick et al[21], which espouses better health, better health care, and lower cost.

The primary focus of education and training should be the desired outcomes for learners rather than the structure and process of the educational system. Before the introduction of CBME, decisions concerning a learner's progress along the continuum of education, training, and practice were based on a set of requirements for exposure to basic science and to clinical experiences and the learner's demonstration of knowledge acquisition at designated points along the way.[22] CBME shifts the emphasis to the learner's ability to demonstrate the *application* of that knowledge. Moreover, CBME defines a broad spectrum of basic competencies, along with specific competencies aligned with chosen career trajectories, that learners must *demonstrate* before they advance to the next stage. This principle—"standardization of learning outcomes and individualization of the learning process"—is one of the four goals of the recent Carnegie Foundation report on reforming medical school and residency education.[23] It is important to emphasize, however, that advancement in CBME is not only predicated on clinical competencies but also on other critical components that contribute to the formation of a physician. For example, professional identity formation, a maturational process that occurs over time, is an integral component of the development of professional competence.[24,25]

The formation of a physician should be seamless across the continuum of education, training, and practice. The vertical adoption of CBME—that is, the integration of a common competency framework across the educational continuum from UME through GME and continuing professional development—will break down the traditional silos of medical education. Likewise, the horizontal adoption and integration across medical schools,

training programs, and regulatory bodies (i.e., those involved in certification) will facilitate the sharing of much-needed resources. Adopting a strategy of "beginning with the end in mind" will allow the entire continuum of education, training, and practice to be informed by a shared vision of what it means to be a good doctor. This reexamination of desired outcomes and curricula leading to these outcomes requires a shift in our thinking away from a focus on merely knowledge toward a focus on critical competencies such as communication and professionalism.[26] This shift must begin at the point of admission, requiring us to reexamine what we consider to be the desirable attributes of premedical candidates. In the spirit of the continuum, it also means focusing and integrating core basic science knowledge throughout education and training, and explicitly linking its application to patient care.[23] This becomes particularly important in light of the continuing explosion of new knowledge and highlights the importance of competence in the practice of evidence-based medicine to meet the challenge of managing and analyzing new information throughout one's career. Continuity of both curriculum and assessment across the continuum will make learning effective, efficient, and meaningful. The additional benefits of continuity for both patients and learners have been well articulated by Hirsh and colleagues.[27]

Commitments required of medical educators

Implementation of CBME will require a number of steadfast commitments that will chart the course for our collaborative journey.

Commitment to teaching, assessing, and role modeling the broad range of identified competencies. The introduction of CBME heralded not only a new educational framework but also a defined set of competencies that learners must be able to demonstrate. Reaching beyond the traditional goals and objectives related to patient care and medical knowledge, these competencies include communication, professionalism, advocacy, scholarship, leadership, and practice and system improvement.[3–6,28] For learners to embrace these competencies as part of their professional formation, they must be made explicit in our curricula. For example, for learners

to become competent in practice-based learning and improvement, there needs to be a curriculum that addresses quality improvement (QI) and the opportunity to apply the knowledge by becoming an active participant in QI work with faculty who role model the implementation of QI in everyday practice.

Commitment to supervision that balances patient safety with the professional development of learners. Although no one would dispute that patient safety is of paramount importance, members of the profession also have a responsibility to the professional formation of learners. There is a basic core of knowledge and skills that faculty must learn to practice effective supervision that aligns competence of the learner with the appropriate degree of supervision. Faculty must provide the structure and support to learners to facilitate their progression toward unsupervised practice. The importance of granting significant responsibility to learners before they complete a postgraduate program is that it allows learners to assume full responsibility for delivery of care while they are still in a protected environment (i.e., where a minimum of supervision at a distance is available), thereby creating a seamless transition into practice.[29]

Commitment to transparency with all stakeholders. CBME is predicated on desired outcomes for patient populations. The voice of the patient—collectively and individually—must be attended to in defining these outcomes if we hope to achieve patient-centered care. In turn, the numerous stakeholders in health care deserve transparency regarding achievement of the targeted outcomes. During individual patient health care experiences, this translates into transparency about the outcomes that individual physicians have achieved with the patients that they serve. CBME, likewise, requires that learners demonstrate the ability to achieve the desired educational outcomes. Transparency regarding these outcomes and a learner's progress toward them is critical. To be able to improve their performance, learners need formative, constructive, and specific performance feedback from patients, other health care professionals, peers, and faculty, requiring collaboration with all stakeholders invested in learner development.

Commitment to the empowerment of learners. Unlike traditional pedagogy, which is based on a hierarchical relationship between teacher and learner, CBME calls for the teacher to help the learner take ownership of his or her education and training. The expectation of CBME is that the teacher, the learner, and the learning environment will foster a learner-centered approach that includes individualized learning experiences, feedback, and guided reflection at every step along the career trajectory.[30] As all learners differ, so should their educational trajectories. Applying this principle requires that we extend our notion of the learning environment to apply to the workplace, allowing learners to spend more time in the types of settings in which they will ultimately practice. An example of the application of this principle is the increasing use of community health centers for training physicians in primary care disciplines.[31]

Commitment to the effectiveness and efficiency of assessment strategies and tools. One of the major concerns raised about CBME is the resource-intense requirement for multiple assessors to determine learners' level of competence through multiple, directly observed assessments. Multiple assessors are critical for two major reasons. First, many stakeholders are involved with patient care, and they each bring an important and different perspective. Second, reliability is dependent on broad sampling.[32] Efficiencies should be sought through the use of technology and the careful selection of assessment tools and strategies. For example, electronic communication technologies such as mobile devices can be used to facilitate time-effective point-of-care assessments. Such tools would need to be embedded within platforms that have the capacity to synthesize assessments and deliver feedback to both learners and teachers. As Crossley and Jolly[33] state, "Because high-level assessment is a matter of judgment, it works better if the right questions are asked, in the right way, about the right things, of the right people." In other words, our assessment strategies must be closely aligned with the constructs (i.e., the behaviors in health care) we are attempting to measure. The essential focus of the assessment must explicitly address what one is attempting to assess. For example, if we want to assess teamwork, we need a tool

that specifically addresses collaborative behaviors in the workplace.[34] There is some evidence that this quality of *construct alignment* increases rater agreement around learner performance and the ability to discriminate between low and high performers while reducing the number of observations required for reliable learner assessments.[35,36] If we hope to measure the integration of competencies needed for care delivery, then workplace assessments based on expert judgment will be critical. The tools that we use should be part of a structured program of assessment[37] and be guided by their "utility," which is defined by van der Vleuten and Schuwirth[32] as the "multiplicative product of their reliability, validity, cost-effectiveness, feasibility, and educational impact." Kogan and colleagues[38] have recently recommended that patient outcomes should also inform our assessment of learners.

Commitment to basing transition decisions on competence rather than time. Although a full transition to a competency-based system of education and training may seem to present insurmountable logistical challenges, teachers can take the first steps toward this goal by responding to individual variability in skill acquisition and by aggregating and applying their experience with individual learners to educational strategies for the specialty as a whole. Learners who are progressing quickly can be pushed further along the developmental continuum from novice toward expert by the time of their transition from GME to practice.[4] Thus, instead of graduating at a level of performance that is considered competent, they may graduate at a performance level of proficient or beyond in certain areas. Conversely, learners must not be allowed to progress merely because they have put the requisite time into the process of education and training. Decisions about progression must be based on the demonstration of required competencies. Meanwhile, tracking learners' performance over time in the required competencies can provide data on how long it takes most learners to attain the expected level of performance in these competencies, thus informing planning with respect to duration of training.

Commitment to advancing CBME through workplace assessment, program evaluation, and research. Assessment of learners at the individual level is critical to their competency-based advancement.

However, because the overarching principle of CBME is to address the health needs of populations[14] and these needs are being addressed by teams of professionals, collective competence is emerging as a critical unit of assessment, and the study of teams is an increasingly important area of continued research.[39] Similarly, accumulating evidence on program effectiveness is critical to the advancement of CBME as a whole. Given the important influence of context on the design and implementation of CBME, gathering this evidence will require a robust understanding of how programs actually operate as well as how their processes contribute to both intended and unintended outcomes.[40] Accordingly, we must expand our view, using a range of lenses—including multisite case studies[41] and developmental[42] and realist evaluation[40]—to capture the complexity of CBME. Education research must draw from and build on existing theories of education, as well as contribute to the development of new ones, in illuminating what worked, what did not work, and why.[43] Accordingly, this research should not focus solely on hypothesis testing but should also elaborate our understanding of how CBME is adopted and adapted as an educational innovation over time.[44]

Commitment to faculty development. Faculty are expected to teach and assess all the competencies now required of learners. Unless faculty are recent graduates themselves, they are being asked to teach about competencies that were not formally taught or assessed during their own training. Compounding the problem is the gap between practices rooted in 20th-century models and the required abilities of 21st-century physicians; for example, team-based care requires new practice models that support interprofessional collaboration, and an emphasis on QI may require infrastructure such as patient registries.[45] Our commitment must be twofold: (1) to provide faculty development in teaching and assessing the competencies required of learners, and (2) to work with those responsible to transform care systems to models that align with our teaching about best practices.[15,45]

Commitment to collaboration. Implementation of CBME will require collaboration of all stakeholders to achieve vertical and horizontal integration. This collaboration should encompass all the international communities interested or involved in

implementing CBME. We must also recognize that health care delivery in the 21st century is a team effort that must include our interprofessional colleagues beginning with shared educational experiences in UME, so that each profession appreciates the scope of practice and contribution of the other before they are asked to function together in teams.

Summary

Evidence that our current systems of education and training are not producing the best possible doctors must spur our profession to test and implement more promising strategies. These efforts are crucial if we are to improve patient care and maintain the public trust. CBME has been recognized internationally as a system of education and training that holds the best promise of improving learner and patient outcomes. Although the challenges are great and the resources limited, we are certain that a collaborative effort offers the best prospect for advancing both the implementation and the study of the impact of CBME on learners and their patients. We offer this charter as the first step in our collective journey.

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