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Navigating the transition: Implementing competency-based medical education in medical curriculum in India

Aditi Aikat

Professer, Department of Community Medicine, JIMSH, Kolkata, West Bengal, India

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ABSTRACT

The road to implementation of competency-based medical education (CBME) in the medical curriculum in India has both challenges and windows of opportunities in its folds. The hindrances identified were reluctance to change, capacity building of faculties, lack of infrastructural support, and methods of assessment. Notwithstanding, CBME has the potential to ensure that the Indian medical graduates are equipped with better clinical skills, and learner-centric education, that aligns well with individual competence, and community healthcare needs. Effective navigation through this transition calls for collaborative efforts among academicians, regulatory bodies, and related stakeholders while drawing from relevant successful models of our country itself. It is imperative to address the challenges concerning capacity building of faculties, resource allocation, and assessment methodology for successful implementation. Given appropriate adoption, the CBME-based curriculum can go a long way to deliver quality healthcare.

Key words: Competency-based medical education; Medical curriculum; India; Transition; Challenges; Opportunities

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INTRODUCTION

Medical education in India has been undergoing a paradigm shift encompassing the domains of knowledge, skill, attitude, and communication for effective clinical practice, and community healthcare.[1] In recent years, competency-based medical education (CBME) has been the focus of educationists, policymakers, and even budding medical graduates, as it is being adopted across the country in the different medical institutions, heralding a new era in pedagogical approaches in medical education. Efforts to align medical education to better proficiency and effective community healthcare have been an on-going process backed by strong and forward-looking regulations on graduate medical education, 1997 that attempted to build on the evolving socioeconomic, and demographic landscape of the Indian community and its changing healthcare dynamics in the context of cross-cutting domains of emerging diseases, advancing science and technology and the globe getting increasingly easier to access both for humans, and for diseases to spill over borders. The graduate medical education regulations, 2018, that has inducted CBME, having outcome-based strategy, has evolved from many of these key principles engrained in the 1997 Regulations.[2] The present curricular approach leans toward the teaching-learning realm that is learner-centric, patient-centric, gender-sensitive, outcome-oriented, and environment appropriate conforming to the global scenario. It intends to develop Indian medical graduates (IMG) who can emulate the role of clinician, competent to provide compassionate preventive, promotive, curative, palliative and holistic care, lead as member of the health-care delivery system, effectively communicating with all concerned, while being lifelong learner with a commitment

Address for Correspondence:
Dr. Aditi Aikat, Professer, Department of Community Medicine, JIMSH, Kolkata - 700 105, West Bengal, India. **Mobile**: +91-9836447476.
E-mail: aikat_aditi@yahoo.com

for continuous honing of professional knowledge and skills per excellence. They are expected to be ethical, responsive and accountable in this journey.[2] This narrative review intends to explore the basic principles, policy, practice, precedence, and share a comprehensive understanding of the inherent programmatic challenges and potential scopes of CBME, while navigating its transition from the previous approach.

METHODOLOGY

The methodology involved a comprehensive search of academic databases such as PubMed, Google scholar, and relevant medical education journals to identify scholarly articles, research papers, and reports related to CBME implementation in medical education along with the evidence generated during the authors own journey as academician. Keywords including "Competency-Based Medical Education," "medical curriculum," "challenges," "opportunities," and "India" were utilized to ensure a comprehensive search strategy. It aimed at identifying key challenges and opportunities associated with the implementation of CBME in the Indian medical curriculum. Relevant successful models of CBME implementation were analyzed and compared to draw insights and lessons applicable to the Indian context. In the absence of comprehensive analytical review in this domain, this narrative review aims to provide policymakers, educators, and stakeholders an exhaustive picture about the challenges and opportunities inherent in the implementation of CBME in India's medical education system, ultimately contributing to the delivery of quality healthcare.

DISCUSSION

To unravel the tenets of CBME, it is essential to understand its deviation from the previously existing, models of medical education.

Basic principle

a. Curricular approach: The conventional medical curriculum, emphasised on the time devoted in the course, discipline-based education, largely teacher-centric acquisition of knowledge, elaborate curricular needs as a major marker of proficiency for the medical undergraduates.[3] The new CBME approach having spelt out, graded learning principle that is student centric with teachers as facilitators of integrated learning, broken down into explicit sub-competencies is in departure of the traditional method of medical education. It mentions specific modalities of teaching to be adopted, and that too within a specified time frame that aligns medical education well with the changing roles of medical graduates, and needs of community healthcare delivery system. It emphasises transparency and accountability in medical education. The new elements introduced encompasses the foundation course (FC), three different phases of learning, ensuring early clinical exposure (ECE), while emphasising upon attitudes, ethics and communication (AETCOM) component, the pandemic module, and the very talked about family adoption program (FAP).[4]

b. Educational strategies: Previously the strategies of medical education were mostly implicit in nature with teachers having individual interpretation and modalities adopted. In a significant deviation, CBME emphasizes on the achievement of predefined core and non-core competencies involving phases of knowing, knowing how, showing, showing how, and performing under supervision or independently. It professes utilizing lecture, small group discussion, demonstration-observation-assistance-performance, and self-directed learning as modalities to achieve these competences. The inception of medical education through structured FC, ECE, FAP for community health understanding from the very first professional year are new additions to the erstwhile educational strategies. The Graduate Medical Education Regulations 2018 emphasizes on integration as a learning experience for developing a holistic understanding of the subjects involved, and their applied aspects[2] CBME relies on the temporal coordination or alignment approach as described by Harden's ladder acts a functional tool in allowing related topics in varied subjects to be taught separately but in the same time frame[5] In the traditional medical teaching, it was not specified and faculty experience and convenience shaped the order of topics being taught. However, traditionally the faculties resorted to didactic lectures using chalk and board methods and later on using power-point presentation, and hence reluctance on part of faculties were one of the challenges noted to transit into this new approach as lack of infrastructural support hindered the faculty development at one go and was largely focal in nature causing a mixed educational approach.[6]

c. Ethical approach: Ethical practice happens to be a soft skill that traditionally was not taught in medical schools as an obvious component of medical curriculum, but picked up at the institute one trains or gets directly transmitted by the mentor to mentee.[7] In a contrast, CBME through the AETCOM module intends to strike a balance between the identified attributes of an 'IMG' that of being a clinician, a leader and member of health care team, communicator, life- long learner and a professional from the very inception of its course. Implementing the AETCOM modules successfully

has been envisioned as one of the key components to ensure competency based undergraduate medical education program makes a smooth transition from the traditional medical education that is deeply engrained among the medical faculties for decades. It specifies 39 core competencies and 15 non-core Competencies in this regard.[8] However, the ground reality remains the implementation of this AETCOM, though backed by spelt out module, is yet to have uniform implementation across various medical institutions and often dealt subjectively by the faculties based on their interpretation and experience. A significant challenge is fitting the health humanities as a new entrant in Phase-I in the context of the new curriculum in a uniform manner.[9,10]

d. Faculty development: Conventionally, the faculties were guided by teachers training programs that had no universal formats and provided through different state based nodal institutions with varying approaches and frameworks. This is another tenet envisaged as an important factor for ensuring the success of the CBMC-guided medical education. The training of medical teachers in the basic and advanced course workshops guided by the curriculum implementation support program, intends to build the capacity of the faculties across the country in a uniform way.[11] But till date, the implementation has been focal with the identified regional medical faculty development centers few in number and unable to match up to the capacity building of the huge bulk of teachers from institutions across the country. The medical education units of many colleges are yet to have fully trained members to be able to render the specified trainings at their local level.

e. Assessment modalities: Conventionally subject based, single time, summative assessments were the largely relied on mode for assessment of proficiency among the students, utilizing differing models of examination across the country. Although the assessment continues to be subject oriented, with the advent of CBME, the emphasis has been shifted to the testing of phase appropriate correlates to gauge the internalization and integration of the concept at its applied form in the students. It emphasizes following up in a longitudinal manner, providing developmental feedback and conducted in authentic settings. These elements are claimed to lower the stakes on individual assessments and improve learning, ensuring standardization without the need for psychometric rigor. Moving on from the traditional modes of assessment CBME driven assessment is more context-specific and graded in nature to understand the learning trajectory of the students better.[12] Although backed by elaborate documentary support, the ground level implementation is focal in nature with sparse capacity building at institutional levels, by the limited number of regional faculty development centers. It has been a major deterring factor in navigating this transition from the pre-existing assessment methods.[4]

Practice

a. Competency: It is an observable ability of a health professional which encompasses knowledge, skills, values, and attitudes and the application in an actual setting. Often it is observed to achieve a certain healthcare objective, several components of competency need to work in tandem.[3] Interestingly, these are not achieved radically at a one point of time, but in a graded, stepwise manner. These steps are termed as milestones. The Dreyfus model of education specifies five milestones, namely, novice whereby the student only observes entrustable professional activities (EPA), advanced beginner involving direct, proactive supervision, competent that is indirect supervision, proficient requiring the student to be ready for independent, unsupervised practice, and expert is the fifth level, when the student can assist other learners to perform the EPA.[12,13]

This gradual shift and honing of competency in-spite of the various modules is a challenging issue, sometimes due to the specifications mentioned by the modules themselves. A very pertinent example would be that of FAP, that necessitates the medical undergraduate students to carry out clinical applied skills that they are yet to reach the desired level of competence in their very 1st year by needing to make clinical diagnosis, etc.

b. Integration
    1. Technique: Traditional medical teaching had different disciplines teaching and covering the given syllabus according to their chosen pace and specified topic. In most of the cases, there was lack of co-ordination among the pre-clinical, para-clinical and clinical disciplines making the student finding it hard to cope with the differing topics to assimilate. In a change to this, CBME intends to merge the theoretical knowledge and clinical practice through integration across the medical curriculum. This integration takes place both vertically (with subjects of higher phase) and horizontally (with subjects of same phase).[3] However, faculty reluctance to go beyond their zone of convenience and lack of interdisciplinary coordination has been noted in this transit.
    2. Content: ECE program in the new approach professes integrating clinical discipline learning

in concurrence with basic subjects in Phase I to improve correlation and better retention. Although it is explicit that this could be effective in enabling the medical graduates navigate through the modern healthcare delivery system, the faculties are mostly of the opinion that this is a premature exposure which the young learners will find heard to cope. Interestingly students found clinical exposure an engaging discourse.[14]

3. Outcome-based Assessment: Drifting from the traditional system of medical examinations, CBME keeps the focus of assessment methods on evaluation of ability of learners to demonstrate the competencies in real clinical settings. These assessments are varied like workplace-based assessments, objective structured clinical examinations (OSCEs), objective structured practical examinations (OSPEs), simulation models, and direct observations of clinical practice. As per CBME the assessment needs to be complemented with timely, specific, and constructive feedback to improve, and reinforce the continuous process of learning. These are in variance with pre-existing system that did not necessitate providing feedback to the learners and largely was teacher's discretion to do so. In a very positive note, CBME recognizes the varying educational needs of learners and promotes individualized learning pathways. One size does not fit all philosophy is incorporated in this teaching-learning approach. Nonetheless, it remains a fact that designing and conducting assessments in this approach is time-consuming and often resource-intensive for academicians, and medical institutions. Faculty perception was lack of uniformity in assessment, lack of resources, and insufficient training as major challenges in implementing the CBME curriculum.[12]
4. Practical examinations: CBME impresses on the ability to perform specific skills and behaviors in a real-world clinical setting. It employs a gamut of assessment methods that include workplace-based assessments, simulation models, OSPEs, and OSCEs, to ensure a holistic and authentic testing of the capability of the learners. The OSCE/OSPE is a clear drift from the pre-existing practical examinations conducted in most of the disciplines. It is not that practical examination was a new entrant in the assessment modality of medical education but this new approach has a deconstructed approach in being very explicit.[9] The supervised component is a stressed upon one along with these examinations being structured, making the implementation of these mode of examination bit challenging with many of the departments having inadequate manpower as well as willingness to render as per the new directives, with again varying models of implementation of OSCE/OSPE noted. Many of the faculties are not sure which curricular competencies to be taken up under the OSCE/OSPE. Some are of the opinion that modified forms of OSCE viz. systematically observed clinical encounters, where faculties are supplemented by trained lay observers for evaluation of the medical students in real life situations, has prospects of improving reliability of OSCE.[15] These practices pose logistical and administrative challenges within the existing evaluation and accreditation frameworks.

Policy

CBME professes a process of continuous improvement at the policy level reflecting the strong and dynamic element of adaptability in medical education, to meet the changing needs of healthcare, while encouraging reflection, self-assessment, and professional excellence in the evolving pathway to quality healthcare. Through elements like FAP from the very 1st year and making them "a physician of first contact of the community" healthcare at the family level CBME aims at creating a social impact by ensuring accessible, available and affordable healthcare.[3] This can go a long way to create IMGs with better community health understanding, empathy and accountability. However, these ideally sound right and hitting the correct public health notes, but on the ground level, implementing the same has been challenging with limited manpower, and transport support in many of the institutions. It is in significant departure of the previous family visit program that was mostly cross-sectional in nature compared to the three and a half year of follow up of the same allotted family and that too 2–5 families per student.

Precedence

a. AIIMS, Delhi model: One of the few successful models across the country is that of AIIMS, New Delhi, that has been implementing CBME in undergraduate and postgraduate medical education. It has established faculty development programs focused on CBME principles, providing training on curriculum development, assessment methods, and teaching strategies. The rural health and training centre of AIIMS (New Delhi) situated in Ballabgarh, Haryana has incorporated collection of data through their students making a difference in community health orientation and eventual healthcare of the population.[16]
b. Christian Medical College (CMC), Vellore: It has a phased approach to CBME implementation, starting

from basic pilot programs and eventually scaling up to full integration. It has a very vibrant community health and development program that provides their medical, nursing, and allied health students great scopes of capacity building. Community orientation run by community health department of CMC, Vellore to understand the community people better is a part of the program that has immense scope for incorporation in the present CBME model.[17] CMC Vellore uses technology-enabled learning platforms and simulation methods to improve learning opportunities and support competency-based assessments. Besides it has developed a robust evaluation mechanism to effectively monitor CBME initiatives, the areas for improvement, and disseminate the lessons learned with others.

Programmatic implementation

a. Faculty development: Notwithstanding the fact that faculty development has been stressed in CBME, the implementation of the same has not been available, and accessible in large scale as capacity building requires manpower, material and money, which is not possible at one go. CBME Faculty development workshops and training programs have been taken up but that is too few to meet the large pool of medical across all institutions, more so in remote or resource-constrained areas.
b. Pedagogical approaches: Although relevant, and appropriate to meet the CBME goals and objectives, the various new pedagogical approaches need to be more implemented in a phased manner to make successful transition from older pedagogical approaches. The radical outlook and approach change by the educators is causing a concern with varied models of competency-based teaching and a perceptible reluctance to come out of the previous model. Besides, in a bid to create competencies and sub-competencies, a long list of abilities may come up but the true essence of the subject lost somewhere.[18]
c. Infrastructure development: Lack of infrastructure support and resources to build the same has been a challenging factor in this path of CBME implementation. Facilities such as clinical simulation, skill labs, student transport for community-based programs like FAP, and resources to conduct OSCE/OSPE as per laid down directives have been vexing the institutions and faculties alike.
d. Research: Given the scenario conducting pilot research initiatives to evaluate the CBME implementation to assess the models that are working and that are not in terms of feasibility, effectiveness, and impact is recommended. Concurrent evaluation needs to be built into the system to gauge its success as well as pitfalls. The best practices noted thereby may be replicated for easing the transition.

CONCLUSION

CBME implementation in India has been pivotal in re-invigorating medical education, still there are scopes of improvement in terms of translating the elaborate, extensive, documents into tangible actions by making the components available, accessible through increased number of faculty development centers, with phased milestones of teaching and learning over a given timeline. The component of evaluation of the objective-based implementation has to be an inherent part of this approach to ensure sustainability and success. It is essential to garner collaborative efforts by the regulatory bodies, medical colleges, and relevant professional organizations to address these challenges and navigate this transition effectively.

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Work attributed to:
Department of Community Medicine, JIMSH, Kolkata, India.

Orcid ID:
Dr. Aditi Aikat - https://orcid.org/0000-0001-5448-1557

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