

## Faculty views on competency- Based medical education during mentoring and learning web sessions: An observational study

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### Abstract

Competency-based medical education (CBME) is an outcome-based education system which is learner oriented. This study was conducted to analyze the knowledge and views of the participants about competency-based medical education and its various aspects.

This was an observational study, conducted on thirty two (32) study participants in one of the regional FAIMER training institutes of India. A structured and validated set of questions on CBME was used for online discussion.

The responses of the participants were noted for each question. Approximately, response rate of 40% was noted for five questions. Remaining three questions witnessed response rate less than 25%.

As MCI in its 'Regulations on Graduate Medical Education, 2012 has mentioned competencies to be achieved by an 'Indian Medical Graduate', in-depth knowledge of CBME is required for each and every medical teacher/facilitator as a part of curriculum management team in medical school/universities.

**Keywords:** Competency, Competency-based Medical Education (CBME), WPBA.

### Introduction

The medical education system all over the world is witnessing a paradigm shift from current/ traditional type of medical education to competency-based medical education. The current medical education being followed in most of the developing countries is of traditional type which is teacher centered and mainly deals with the teaching and assessment of knowledge component. The concept of competency based medical education is centered on a learner, focusing upon skill development and assessment in the form of skill performance.

The competency-based medical education (CBME) has been incorporated in the curricula of medicine in various medical schools and universities of developed countries across the world. CBME is an outcome-based approach to design, implementation, assessment and evaluation of a medical education program using an organized framework of competencies as proposed by Frank et al.<sup>(1)</sup>

As it is an outcome-based approach, the emphasis is given on the end product rather than the educational process. In CBME, the educational outcomes are clearly defined. The content of the curriculum and its organisation, the teaching methodologies and the assessment methods are determined according to expected outcomes.<sup>(2)</sup>

The alignment of specific outcome competencies with the methods and assessment is facilitated by CBME.

This study was undertaken with the aim of evaluating knowledge and views of FAIMER participants and to promote self-learning with appropriate review of literature.

### Materials and Method

This was an observational study, conducted in one of the regional FAIMER training institutes of India. Thirty two (32) FAIMER fellows, enrolled from different parts of the country and from other Asian countries for Foundation for Advancement in International Medical Education and Research (FAIMER) Fellowship programme were included as study participants. Sixteen (16) fellows of 2014 batch and sixteen (16) from 2015 batch participated in online discussion. A structured set of questions was prepared and validated from medical educationists. It was administered through Mentoring and Learning (ML) Web sessions and the participants were requested to respond within requested time period. All questions were of open ended variety which covered various aspects of CBME that included definition of competency and CBME, Differences between competency based medical education and traditional content medical education, viewpoints of faculty on merits and demerits of CBME and traditional/ current curriculum, Stages of competence, Steps of planning and implementation of CBME, challenges in implementation. The questions also covered different assessment systems for CBME and Workplace-based assessment (WPBA).

## Results & Discussion

In the present study, the study participants were from pre-clinical, para-clinical and clinical subjects of medicine and also included faculty from physiotherapy and ayurveda. The set of questions used for the discussion during Mentoring and Learning Web Sessions on CBME is given in Table 1.

**Table 1: Set of questions used for Mentoring and Learning Web Sessions on Competency-Based Medical Education (No. of participants= 32)**

Question	No. of Responses
Define competency. What is Competency-based medical education (CBME)?	13 (40.62%)
How the CBME is different from traditional content medical education?	13 (40.62%)
Viewpoint on merits and demerits of current curriculum Viewpoint on merits and demerits of CBME	14 (43.75%)
Explain four stages of competence (Learning)?	08 (25%)
What are the steps for planning Competency-Based curriculum? What are the steps & strategies for its implementation?	15 (46.87%)
What are the challenges in implementation of CBME?	07 (21.87%)
What are the different assessment systems for CBME?	06 (18.75%)
What is work place based assessment and what is its role in CMBE?	15 (46.87%)

The discussion on specific questions covered in-depth information of CBME. The participants did a thorough review of literature to answer the above mentioned questions. Summary of responses for first two questions is tabulated below. (Table 1 & Table 2)

**Table 2: Summary of responses of participants for “Define competency. What is Competency based medical education (CBME)?”**

Response
Competency is an expertise or skill of acceptable norms/standards developed through a predetermined process of learning and practice
CBME is an approach of preparing a physician who can practice in such a way that can meet the current need of society and patients.
Considering the patient needs CBME focuses upon what competencies and assessment tools are required to meet those needs and accordingly sets appropriate curriculum for residents and physicians in practice.
Competency in a particular area means An observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes. Whereas, CBME 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 deemphasizes time-based training and promises greater accountability, flexibility, and learner centeredness.
Competency is an expertise which is derived from an analysis of needs of patients and society.
Five characteristics to define a competency proposed by Albanese et al. <sup>(3)</sup> <ol style="list-style-type: none"> <li>1. A competency focuses on the performance of the end product or goal state of instruction</li> <li>2. A competency reflects expectations that are external to the immediate instructional program</li> <li>3. A competency is expressible in terms of measurable behavior</li> <li>4. A competency uses a standard for judging competence that is not dependent upon the performance of other learners</li> <li>5. A competency informs learners, as well as other stakeholders, about what is expected of them.</li> </ol>
Competency based education (CBE) is a framework for designing and implementing education that focuses on the desired performance characteristics of health care professionals.

**Table 3: Summary of responses of participants for “How the competency based medical education is different from traditional content medical education?”<sup>(4)</sup>**

Variable	Traditional content medical education	Competency-based medical education
Driving force for curriculum	Content: knowledge acquisition	Outcome: knowledge application
Driving force for process	Teacher	Learner
Path of learning	Hierarchical	Non hierarchical
Responsibility for content	Teacher	Student and teacher
Goal of educational encounter	Knowledge acquisition	Knowledge application
Assessment	Based on mastery of curriculum	Based on the health needs of the society
Typical assessment tool	Single subjective measure	Multiple objective measures (evaluation portfolio)
Assessment tool	Proxy	Authentic ( mimics real tasks of profession)
Evaluation	Norm referenced	Criterion referenced
Timing of assessment	Emphasis on summative	Emphasis on formative
Program completion	Fixed time	Variable time

The participants discussed merits and demerits of current curriculum and CBME.

The merits of current curriculum includes:

- It is the ‘tested and tried’ method of teaching undergraduates in medical schools.
- It is highly manageable particularly when we are dealing with the large group of students.
- Medical training to date has included the completion of a minimum number and type of clinical placements and rotations for good reason.
- Traditional methods are capable of assessing the integrated knowledge and skills into comprehensive care of a wide range of patients and in varying settings.
- The implementation of traditional curriculum is familiar to the faculty. As present age medical teachers have all been trained through this pattern, they are well-versed with its implementation.
- Traditional curriculum has a strong foundation in medical training. Hence, whichever newer methods of curriculum would emerge would more or less have to be centered around traditional pattern.
- Outcome-based medical education will ultimately have to be founded on the grounds of traditional pattern.<sup>(5,6,7)</sup>

Old data, outdated information, emphasis on rote knowledge, since years same type of questions being asked in the examination as a part of assessment, no integration in teaching as well as in textbooks are demerits of current curriculum.

The merits of CBME are as follow:

- It helps learner to identify areas to improve upon
- Improves evaluation of residents
- More defined feedback can be given to residents
- Earlier identification of underperformers can be done
- Provides aspirational goals for overachievers

Whereas, assessment of only competency based abilities i.e., ‘observable ability’, poor knowledge about the principles of CBME, educating the educators (Unwillingness of teaching staff to get trained), time needed for training staff, new implementation strategies unknown to the educators, development of standard evaluation systems, changing mindset of teachers and learners, funding barriers, potential to reduce learning to completing a list of ‘tick boxes’, set outcomes decrease the sense of academic exploration and learning by inquiry are some of the demerits of CBME.

**The discussion on four stages of competence (Learning):** In the fields of education and operations research, the Dreyfus model of skill acquisition is a model of how students acquire skills through formal instruction and practicing. Brothers Stuart and Hubert Dreyfus proposed the model in 1980.<sup>(8)</sup>

Initially described as “Four Stages for Learning Any New Skill”, the theory was developed by Noel Burch in the 1970s. It has since been frequently attributed to Abraham Maslow, although the model does not appear in his major works.

Conscious competence ladder/ matrix/ four stages of competence:

- One of the popular approaches that help us to manage our own learning process
- It also helps us to better coach our learners through the difficult learning process

The four stages of competence are as follow:

**Unconscious Incompetence:** The individual does not understand or know how to do something and does not necessarily recognize the deficit. He/she may deny the usefulness of the skill. The individual must recognize his/her own incompetence, and the value of the new skill, before moving on to the next stage. The length of time

an individual spends in this stage depends on the strength of the stimulus to learn.

**Conscious Incompetence:** Though the individual does not understand or know how to do something, he/she does recognize the deficit, as well as the value of a new skill in addressing the deficit. The making of mistakes can be integral to the learning process at this stage.

**Conscious Competence:** The individual understands or knows how to do something. However, demonstrating the skill or knowledge requires concentration. It may be broken down into steps, and there is heavy conscious involvement in executing the new skill.

**Unconscious Competence:** The individual has had so much practice with a skill that it has become "second nature" and can be performed easily. As a result, the skill can be performed while executing another task. The individual may be able to teach it to others, depending upon how and when it was learned.

**The steps for planning CBME & strategies for its implementation are as follow as per discussion by the participants.**<sup>(6)</sup>

**Identification of competencies:** This can be done by consensus opinion of experts, health needs, analysis of physician activities, self-report by physicians to identify critical elements of behaviour, critical incidents, public health statistics, medical records, practice setting and resources. By defining learning outcomes and communicating this with the faculty and students would define required competencies and their components.

**Identification of the content & Program organization:** Identification and sequencing of the corresponding course content should be done. Selection of required educational activities, delineating minimum and maximum time period of training, creating space for feedback sessions and reflections are some of the strategies for implementation. Defining the desired level of mastery/ expertise in each area, defining milestones or achievement points along development path for competency i.e. charting of student progression pathway are important strategies need to be followed.

**Planning for Assessment and Program evaluation:** Identification of observable and measurable form of competencies in real settings; E.g. Entrustable Professional Activities (EPA), defining performance criteria which include establishing minimum acceptable norms of summative performance and intervening levels of expertise is required. Appropriate assessment tools need to be selected to measure progress for achievement of milestones. Designing and developing a longitudinal assessment program with emphasis on WPBA methods, and an outcomes evaluation program is required as the final step of CBME implementation.<sup>(7)</sup>

During discussion on implementation of CBME, participants pointed out the following challenges:

- Specifying the competencies & assessing them is difficult & tiring task

- Students may pay attention towards learning the lengthy list of competencies rather than achieving expertise
- Since CBME promoting individualized flexible training, it is difficult to supervise large number of students improving at their own pace
- There may be Lack of order in managing so many people involved
- Breaking competencies into smaller observable units may lead to danger of minimizing contents
- Also by breaking complex competencies into smaller units so that they are observable, question like how does assessing these fragmented competencies reflect the real world situation? May arise
- Trimming content may not be justifiable
- Faculty development
- Lack of Human resources
- Funding barriers
- Lack of equipment
- Lack of infrastructure
- Assessing the validity & reliability of new teaching & assessing tools
- Coordinating medical student and PG/residency program
- Creating better systems of student assessment
- Change in teacher and student/learner ethos<sup>9</sup>

The assessment of CBME as discussed by the participants is as follow:

CBME can be assessed by Portfolios, Clinical Log books, use of chart stimulated recall (CSR), case discussion.<sup>(10,11)</sup> As CBME is an outcome-based approach, the assessment should be done at the workplace by observing learners. Workplace Based Assessment (WPBA) is the assessment of working practices based on what doctors actually do in the clinical setting and is predominantly carried out in the workplace itself.

The WPBA methods assess at the topmost level of Miller's pyramid that is 'does' level. Few assessment tools used as WPBA are as follows:

- mini-Clinical Evaluation Exercise (mini-CEX)
- Directly Observed Procedural Skills (DOPS)
- mini-Peer Assessment Tool (mini-PAT)
- Multisource feedback (MSF)
- Clinical encounter cards (CEC)

**Rationale for adopting WPBA:**

- Conforms to the highest level of Miller's Pyramid
- Focus on clinical skills including the necessary soft skills (communication, behavior, professionalism, ethics, attitude)
- Observation (in real situation) and feedback
- Context and content specificity
- Compensates for some shortcomings in the traditional assessment methods
- Seamless blending of purpose and ideology with that of 'In Training Assessment'

- Alignment of learning with actual working
- Encourages reflective practice

### Conclusions

Present study revealed multiple responses regarding various dimensions of competency-based medical education. It included learning of the concept of competency-based medical education, steps and strategies of its implementation and assessment methods. The overall participation in the discussion showed positive learning behavior and interest among medical faculties towards competency-based medical education and its incorporation into medical curricula.

### Limitations

High non response rate of the participants in the discussion limits our study hence its conclusions cannot be generalized. However, further studies among medical faculty on awareness about CBME and actual training of the faculty in the medical schools/institutions would help implementation of CBME.

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