Review Article

Medical education in India – a rapidly evolving framework for the future

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ABSTRACT

Medical education in India has evolved from its colonial foundations into a modern system that prioritizes both patients and students, shaped by the country's healthcare demands. Post-independence reforms have brought substantial changes, with significant contributions from the introduction of Competency-Based Medical Education (CBME) and the Attitude, Ethics, and Communication (AETCOM) modules. These initiatives aim to shift the curriculum towards a more holistic understanding of healthcare, prioritizing patient-centred care, ethical practice, and effective communication. While CBME has been a milestone in aligning modern medical education with practical healthcare needs, its adoption has been slow, and faculty adaptation remains a significant challenge. To advance further, there is a critical need for accelerated CBME implementation, supported by robust faculty development programs. Moreover, competency-based assessment is encouraged by the NMC as it is the assessment for learning. Incorporating cutting-edge technologies, such as artificial intelligence and virtual simulations, into both the teaching and assessment processes could revolutionize medical training by enhancing experiential learning and clinical decision-making. Ethical values and communication skills should not be confined to the AETCOM module alone but need to be woven throughout the curriculum to better prepare future healthcare professionals for the complexities of modern practice. This approach not only fosters clinical competence but also cultivates the compassion and empathy necessary for effective healthcare delivery. In conclusion, addressing these key areas will ensure that India's medical education system continues to evolve in alignment with global standards while addressing the nation's specific healthcare challenges.

Keywords: Medical education, CBME, AETCOM, Teaching learning methods, Faculty development

INTRODUCTION

India has several ancient systems of medicine that existed long before the introduction of modern evidence-based medicine during British colonial rule. The most prominent of these is Ayurveda, meaning "the science of life." In India, other traditional systems of medicine – such as Yoga, Naturopathy, Unani, Siddha, and Homeopathy, collectively referred to as AYUSH – are widely practiced, particularly in rural regions. India is the only country to legalize these traditional systems of medicine and accept them as complete systems of medicine. The cross-cultural exchanges between the people of India and their colonial rulers played a pivotal role in shaping medicine and medical education in the country.[1] While these interactions between Eastern and Western medical traditions were often marked by tension due to colonialism and power dynamics, they ultimately transformed both systems.[2] In our MBBS training, Indian systems of medicine, such as Ayurveda, Yoga, Unani, Siddha, Homeopathy, and Sowa Rigpa, are included as 1 week of elective training under the compulsory rotating internship. The regulation of

medical education and health professionals is crucial to the governance of health systems, yet in many low- and middle-income countries (LMICs), including India, this area has been a persistent source of concern and institutional weakness. India, like other LMICs with an underfunded public sector and a poorly regulated private sector, faces significant regulatory challenges as commercial actors increasingly dominate healthcare and medical education.[3] While it is widely recognized that a strong health workforce is essential for achieving universal health coverage (UHC), there has been limited analysis on the alignment of education and training policies for health workers with UHC objectives.[4] The objective of this review is to examine the evolving framework of medical education in India, highlighting the impact of reforms like CBME and AETCOM, and to explore the need for

innovative teaching methods and faculty development to align with future healthcare demands.

EVOLUTION OF MEDICAL EDUCATION IN INDIA

The evolution of medical education in India began under British rule in the 19th century (Figure 1). The first medical colleges were established in Calcutta and Madras in 1835.[5] During this period, the British introduced a new medical education curriculum that significantly influenced and restructured traditional Indian medicine. The Indian Medical Service (IMS) was established in 1857 to support this system.[6] This long period of colonial intervention established an urban-centric, elitist system heavily focused on hospital-based curative care.
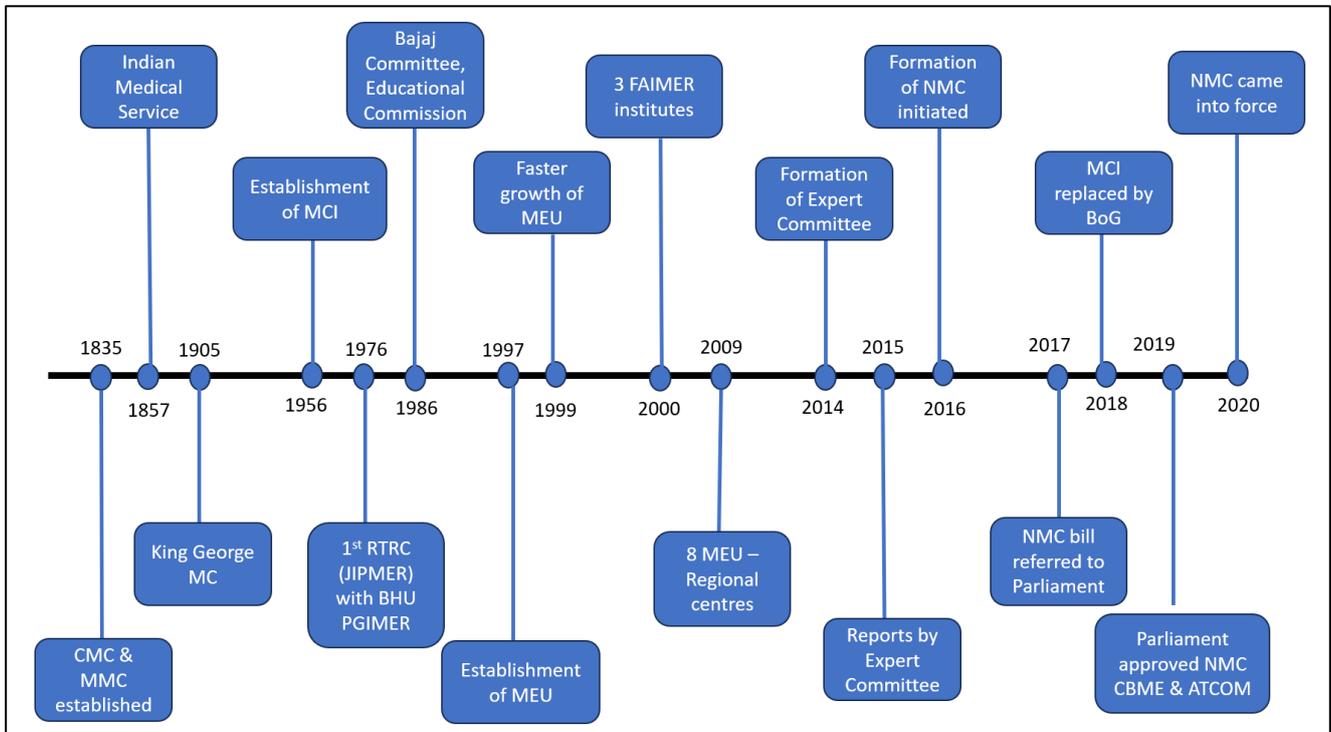

Figure 1: History and evolution of medical education over time in the Indian context.

While it introduced modern scientific methodology, it simultaneously led to the active marginalization of indigenous Indian medical systems and created a profound rural-urban health disparity. Consequently, at the time of independence, the country inherited a fragmented healthcare structure skewed towards tertiary care. The Bhore committee (1946) pioneered the vision of a comprehensive, primary health-oriented system by integrating preventive and curative services into medical education and healthcare planning. Following India's independence, there was a recognized need to harmonize indigenous Indian medicine with the allopathic system introduced by the British.[7] To address this, the Medical Council of India (MCI) was established in 1956 to oversee

medical education and training.[8] The Mudaliar committee (1962) later highlighted the need for improving the quality of medical training, better facilities, and strengthening specialist education to meet the growing health demands of the country. In 1976, the first regional training and resource centres were set up at JIPMER and BHU, marking a key development in medical education infrastructure. The evolution of medical education continued with significant contributions from various planning committees. The Shrivastav committee's Reorientation of Medical Education (ROME) scheme, introduced in 1978, aimed to align medical education with primary health care needs.[9] This was followed by the Bajaj committee's educational commission in 1986, which

further advanced medical education reforms to make medical education more community-oriented, including integration of medical curricula with national health needs, emphasis on primary healthcare and rural health services, strengthening of preventive and social medicine, development of continuing medical education, and better coordination between different systems of medicine.[10] These conceptual reforms laid the groundwork for concrete changes in faculty training. In 1997, the establishment of the Medical Education Unit (MEU) marked a new phase in the modernization of medical education.

The MEU plays a key role in improving the quality of teaching in medical colleges by training faculty in modern educational methods, updating curricula, promoting innovative teaching–learning practices, and fostering continuous faculty development. The early 21st century saw the initiation of three Foundation for Advancement of International Medical Education and Research (FAIMER) institutes in Mumbai (GSMC), Ludhiana (CMC), and Coimbatore (PSG). FAIMER institutes aim to enhance the quality of medical education worldwide by developing health professions educators into effective teachers, researchers, and leaders, with a strong focus on innovation and community health needs. These institutes accelerated the growth of MEUs, leading to the creation of eight additional regional MEU centres in 2009.[2-11]

Despite these advancements, medical education evolution did not always align with the needs of the Indian health system. For a long period, several generations of doctors were trained under a medical education system marked by deep flaws, shaping their values and attitudes accordingly. It took so long to realize that the British-era curriculum was outdated because medical education remained highly centralized, urban-focused, and exam-driven, with little attention to India's community health needs. The prestige attached to Western models and a lack of regular curriculum review meant that outdated structures continued unchallenged.

Moreover, socio-economic inequalities, slow policy implementation, and resistance to change within regulatory bodies delayed meaningful reforms, keeping the system out of sync with the realities of a rapidly changing nation. The limitations of the British-era curriculum became more apparent in the second decade of the 21st century.[7] The unbridled growth of private medical colleges, driven by commercialization, led to rampant fraud and corruption, with the MCI at the epicentre of these practices.

This became the proverbial 'elephant in the room,' severely compromising the quality of training and the competency of graduating doctors. The culmination of this crisis was the landmark report by the Parliamentary Standing Committee on Health and Family Welfare, which identified widespread corruption and recommended the dismantling of the MCI. In response to this crisis, the MCI recognized the need to reduce the artificial compartmentalization of medical disciplines. An expert committee was formed in 2014 to review and reform the curriculum, emphasizing the need for horizontal and vertical integration. The committee's report in 2015 led to the initiation of the NMC in 2016, replacing the MCI.[12] The NMC bill also introduced a CBME framework and incorporated training in AETCOM. Since 2020, the NMC has been responsible for overseeing medical education in India. For decades, the persistence of the colonial-era curriculum, with its emphasis on hospital-based and Western-centric training, left medical education disconnected from India's public health priorities.

Gradual recognition of these shortcomings, supported by committee recommendations and global shifts in medical pedagogy, has driven reforms. The curriculum is now better aligned with the goal of achieving universal health care and preparing competent physicians for the 21st century.[13] There are 12 Nodal centres for medical education in India under the NMC. These are designated for various Faculty Development Programs and are tasked with training faculty in the ACME.

They oversee the implementation of curriculum support programs and Basic Course in Medical Education (BCME) by the 23 regional centres in different zones of the country. The Regional centres guide the different medical colleges' medical education units to conduct BCME in their institutions.[14]

FROM CONTENT DELIVERY TO COMPETENCY DEVELOPMENT: THE CBME TRANSITION

Competency refers to the ability to perform tasks successfully and efficiently, integrating knowledge, skills, and attitudes.[15] Unlike traditional medical education models that emphasized rote knowledge acquisition, CBME focuses on applying knowledge to real-world scenarios and achieving measurable outcomes (Table 1). In the past, medical education was largely teacher-centric, with educators determining the content and skills deemed necessary for students. This often led to a one-size-fits-all approach, which didn't always address individual learning needs. The CBME model moves away from traditional rote and teacher-driven methods, placing the student at the centre of the learning process.

It emphasizes not just acquiring knowledge but also developing practical skills, communication abilities, ethical values, and professional attitudes and competencies that together prepare graduates to address the varied and evolving needs of healthcare practice. Under CBME, assessment methods have evolved from traditional summative evaluations to more formative and continuous assessments. This approach provides a more comprehensive view of student performance and learning progress, allowing for ongoing feedback and improvement. The curriculum has also been designed with flexibility in course completion times, reducing student

stress and allowing adequate time to acquire necessary competencies.

A key feature of CBME is its focus on societal health needs. The curriculum emphasizes understanding the social determinants of health and the influence of factors such as gender, class, and caste on health disparities and power imbalances within the healthcare system. For example, the curriculum introduces Early Clinical Exposure (ECE) to help students understand community health realities from the first year itself. Specific competencies are clearly defined, such as those under the AETCOM module, which train students in communication, ethics, and professionalism.

Table 1: Key differentiating features between traditional education model and competency-based medical education.

Features	Traditional education models	Competency-based medical education
Driving force of curriculum	Content (more focussed on knowledge)	Outcome focussed
Goals of learning	Acquisition of knowledge	Application of knowledge
Centricity	Teacher centric	Student centric
Responsibility of the content	Teacher	Both teacher and student
Assessment	Summative	Summative and formative
Completion time	Fixed	Variable

(Source - Tejinder Singh. Principles of medical education. 4th Edition. Indian Academy of Paediatrics).

It is a mandatory, standalone module, yet the curriculum's design encourages faculty to weave these ethical principles into the content of all courses to ensure a consistent reinforcement of values throughout a student's training. Skills laboratories further ensure that students achieve hands-on competencies like basic life support and clinical examination. These structured learning outcomes and assessment methods make medical education more relevant and aligned with real-world healthcare requirements. For Indian medical graduates, the expected competencies include the development of clinical skills, leadership qualities, effective communication, lifelong learning, and professional behaviour. A competent clinician must understand patient needs, provide compassionate and holistic care, and communicate effectively with patients, families, colleagues, and communities. To ensure success in healthcare, teams and systems need strong leadership, a commitment to ongoing training, and ethical conduct.[16] Despite these advancements, establishing a new paradigm in the Indian medical education system has faced challenges. The slow adoption of CBME in India is primarily due to a lack of

trained faculty, resistance to change, and inadequate infrastructure. While these issues affect both government and private colleges, they are often exacerbated in public institutions by severe faculty shortages and heavy patient loads.[17] To address these issues, a multi-pronged approach is essential. While implementing robust faculty development programs is a critical first step to help educators adapt to the new framework, these programs alone cannot solve all the challenges. A holistic approach is needed, which includes a supportive administrative framework, adequate funding for infrastructure, and addressing the heavy workload of faculty in both teaching and clinical duties. Only through these coordinated efforts can students be effectively prepared to become competent, job-ready healthcare professionals.

In modern medical education, learning encompasses three key domains: cognitive, affective, and psychomotor. The cognitive domain involves understanding and applying information, as described by Bloom et al, progressing from comprehension to analysis, synthesis, and evaluation. Traditional medical education has predominantly focused on enhancing cognitive skills. However, the affective and psychomotor domains are equally crucial. The affective domain, as proposed by Krathwohl, pertains to a healthcare professional's attitudes and behaviours, including receiving, responding to, organizing, and valuing experiences.[18] Empathy and ethical behaviour are integral to this domain, yet traditional medical education often placed limited emphasis on these aspects.[19] While traditional medical education's limited focus on ethics is a factor, the rise of unethical practices is more fundamentally linked to the commercialization of the field. This shift incentivizes financial gain over patient well-being, contributing to medical negligence, professional misconduct, and a decline in public trust. The psychomotor domain, on the other hand, relates to the development of practical skills and competencies. Training in this domain is essential for improving clinical skills and overall professional performance.[20] Recognizing these needs, the AETCOM module was introduced into the undergraduate medical curriculum. This module aims to address the deficiencies in the affective and psychomotor domains by focusing on developing positive attitudes, empathy, and effective communication skills.[21] The NMC has endorsed this approach, providing guidelines for incorporating medical ethics and communication training. The AETCOM employs a hybrid problem-solving approach, allowing students to engage with real-life scenarios and challenges. This is better achieved by experiential learning through reflection. This method helps in fostering a deeper understanding of ethical and empathetic interactions with patients.[22] A study conducted by Nayak et al at Manipal university found that after participating in communication skills training, final-year students and interns showed significant improvements in positive attitude scores and communication skills compared to first-year students.[23] This evidence from a single-centre study highlights the potential of incorporating AETCOM into the curriculum to better prepare medical students for the complexities of

real-world practice. Implementing AETCOM in Indian medical education faces several challenges. While many faculty members lack formal training in teaching ethics and communication, leading to inconsistent delivery, there is a limited and often unstructured system for providing periodic feedback to policymakers on the content and implementation of the CBME and AETCOM modules. The overcrowded curriculum often sidelines AETCOM, and its assessment remains largely subjective. Additionally, institutional resistance to change and limited resources hinder integration. Addressing these issues requires faculty development, structured evaluation methods, and stronger institutional support.[24]

TEACHING–LEARNING REFORMS

Teaching and learning methods in modern medical education can be broadly categorized into two groups: small-group and large-group methods.
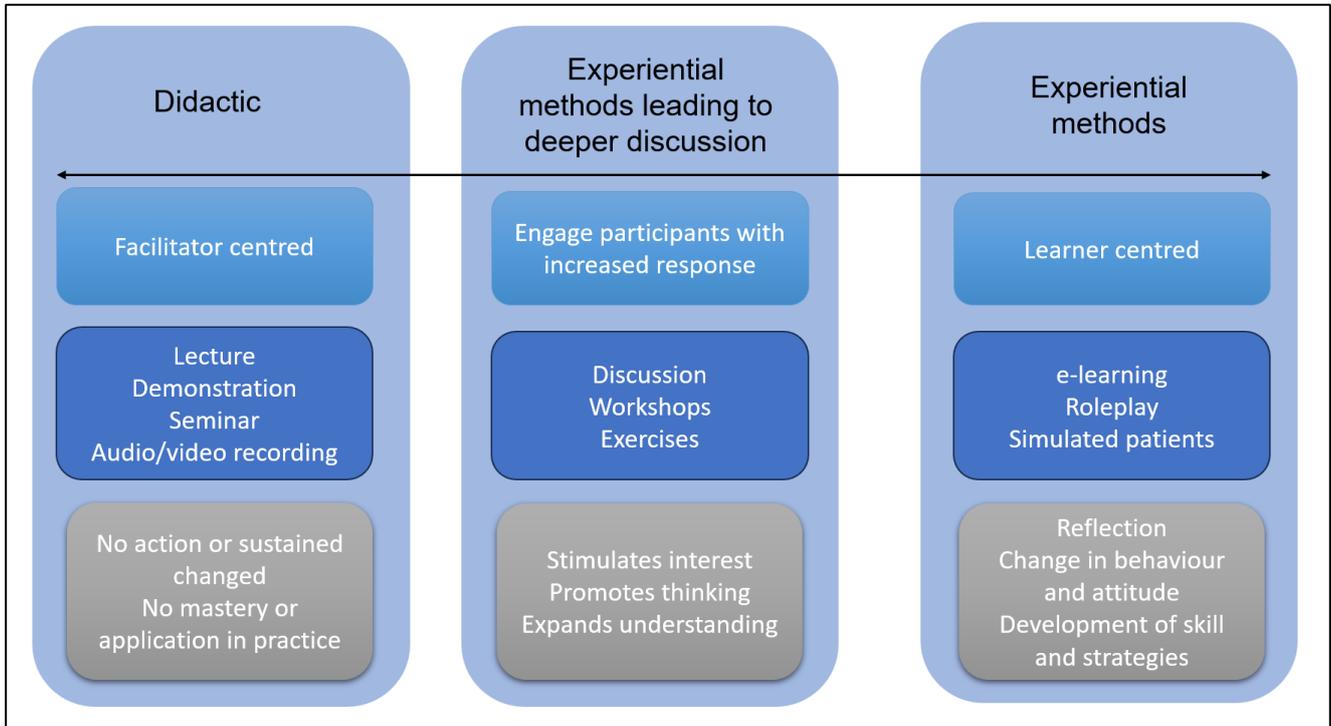

Figure 2: Comparison between various teaching learning methods.

(Source - Competency based undergraduate curriculum for the Indian medical graduate, the new MCI curricular document: positives and areas of concern Ananthakrishnan N.).

Small group teaching methods include case-based learning, problem-based learning, bedside teaching, small group discussions, the fishbowl method, and microteaching. These methods are more learner-cantered, providing students with opportunities for active engagement and skill development. They promote critical thinking, encourage active participation, and foster changes in attitude and behaviour. Small group settings facilitate deeper understanding and practical application of knowledge. In contrast, large group or traditional teaching methods involve lectures, conferences, symposiums, and panel discussions. These methods are generally facilitator-cantered and can be less interactive, often resulting in limited opportunities for problem-solving and clinical skill development. Large group teaching can sometimes be monotonous, making it challenging to stimulate engagement and maintain interest.[25,26] To enhance large group teaching, newer techniques have been introduced to make the sessions more interactive and effective (Figure 2). Methods such as the think-pair-share technique,

classroom opinion polls, memory matrices, pro-and-con grids, minute papers, muddiest point exercises, and buzz sessions are some examples that can increase student participation and facilitate deeper learning.[27] Self-directed learning (SDL) in CBME shifts the traditional teacher-centric model to a learner-centric one. This approach works by a four-step process: students first identify their learning needs and set specific goals, then actively find and use resources to learn, and finally, evaluate their own learning outcomes. The instructor's role evolves from being a "sage on the stage" to a "guide on the side," facilitating this process through structured guidance, small group discussions, and providing feedback, ultimately empowering students to become lifelong learners.[28] CBME not only emphasizes innovative teaching methods but also integrates novel assessment techniques, ensuring a comprehensive approach to both learning and evaluation. The shift to CBME in India is intended to bring about a fundamental reorientation in how medical students are taught and how they learn. This approach aims for traditional teacher-driven lectures to be gradually replaced

by more participatory and student-focused approaches, though widespread and consistent implementation remains a significant challenge. Methods such as case-based discussions, problem-based learning, early clinical exposure, and self-directed learning are now central to the curriculum. These strategies aim to connect theoretical knowledge with clinical practice from the early stages of training. Integrated learning in CBME breaks down traditional subject silos by using real-world clinical cases or body systems as a central theme. This approach allows students to see the direct connection between different subjects like anatomy, physiology, and pharmacology, making their learning more relevant and holistic. Skills laboratories and simulation-based teaching have gained prominence, providing safe spaces for hands-on practice before encountering real patients. Technology-enhanced learning, including flipped classrooms and online modules, further supports this transition. These changes not only enrich the learning experience but also cultivate critical thinking, communication skills, and a sense of responsibility—qualities essential for tomorrow's healthcare professionals.[29] For example, a student in a simulated emergency must think on their feet, use clear communication with the team, and experience the direct consequences of their actions, all without risking a real patient. This hands-on approach instills a deep sense of professional accountability. Ultimately, this move towards hands-on, learner-centric methods signifies a fundamental shift in medical education – one that aims to prepare future doctors who are not only clinically proficient but also critically thinking, communicative, and ethically grounded professionals.

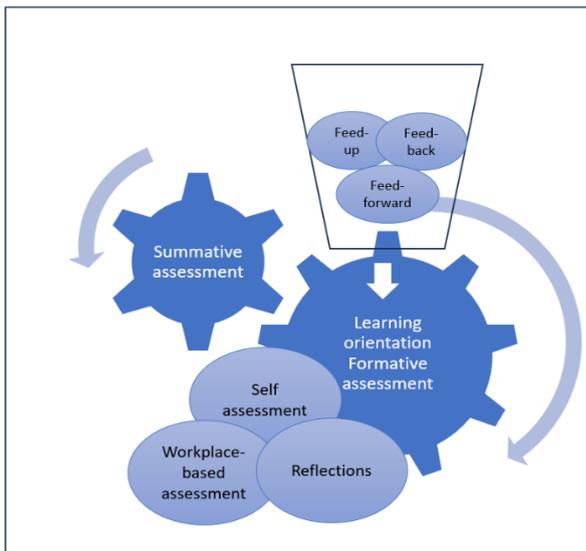## EVOLUTION OF ASSESSMENT METHODS IN CBME

Figure 3: Various types of assessment methods.

(Source - Competency based undergraduate curriculum for The Indian medical graduate. Assessment module for undergraduate medical education 2019. MCI).

There are broadly two assessment methods – formative and summative. Formative assessment is ongoing, providing feedback to guide students' learning and identify areas for improvement.

It includes quizzes, assignments, and feedback during clinical rotations. Summative assessment evaluates overall learning at the end of a course or module, often through final exams, Objective Structured Clinical Examinations (OSCEs), or standardized tests. While formative assessments support learning and skill development, summative assessments determine competency and readiness for progression or certification. Together, they ensure a comprehensive evaluation of knowledge, clinical skills, and professional behaviour, fostering both immediate improvement and long-term competence in future healthcare professionals (Figure 3). Traditional medical education assessments typically occurred at the end of a course, often focusing on summative evaluation. In contrast, CBME emphasizes ongoing formative assessment and continuous internal assessment throughout the learning process. This shift aims to better understand how students are learning and to provide timely feedback.[30]
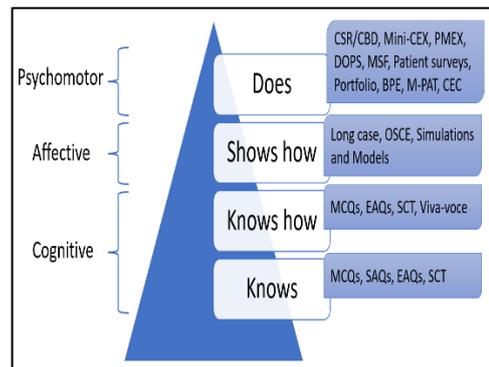

Figure 4: Assessment methods according to the domains of learning.

(Source - Singh T, Saiyad S, Virk A, Kalra J, Mahajan R. Assessment toolbox for Indian medical graduate competencies. J Postgrad Med. 2021 Apr-Jun;67(2):80-90).

(*CBD= case-based discussion, DOPS= Directly observed procedural skills, MSF=multi-source feedback, BPE= Blinded patient encounter, CEX=Clinical evaluation exercise, MCQ= Multiple choice question, EAQ= Essay answer questions, SAQ= Short answer questions, SCT= Short question types).

Current assessment methods in CBME are designed to evaluate students across all domains of learning, as outlined by Miller's pyramid.[31] For example: cognitive domain (knows and knows how): under the CBME curriculum, this domain is assessed using multiple-MCQs, SAQs, EAQs, SCT, and viva-voce (oral exams). Affective domain (shows how): assessment methods for this domain include long cases, OSCEs, simulations, and various models. Psychomotor domain (does how): evaluation of practical skills can be conducted through methods such as

Mini-CEX, PMEX, DOPS, MSF, BPE, Mini-PAT (Mini-Peer Assessment Tool), CEC, and portfolios (Figure 4).[32] Research by Tejinder Singh et al has highlighted the limitations of traditional assessment methods, such as issues with observation accuracy, artificial testing environments, and limited opportunities for improvement. Newer assessment methods in CBME address these shortcomings by incorporating workplace-based evaluations and direct observation of performance. These approaches provide high-quality feedback, better reflecting real-world clinical scenarios. The integration of multiple assessment methods and tools enhances the validity and reliability of evaluations. The various attributes of assessment like validity, reliability, feasibility, accessibility and educational impact determine the utility of assessment. Unlike traditional exams, which may not always translate to real-world performance, CBME assessments offer a more comprehensive view of a student's capabilities.[33] The ongoing, continuous nature of competency-based assessment allows for developmental feedback and helps ensure that students are well-prepared for clinical practice.

NEED FOR FACULTY DEVELOPMENT PROGRAM

Faculty Development Programs (FDPs) in medical education serve as a cornerstone for enhancing the teaching competencies, professional growth, and academic leadership of medical educators. With the evolving nature of medical education—particularly the transition towards CBME- the role of FDPs has become increasingly crucial. These programs are designed to build faculty capacity in diverse areas such as innovative teaching-learning methodologies, student assessment strategies, curriculum planning and integration, educational research, ethical and communication skills, and the effective use of educational technology. FDPs not only ensure that educators are pedagogically equipped but also empower them to foster a more interactive, student-centered, and outcome-oriented learning environment.[34]

In India, the NMC, formerly the MCI, has made faculty development mandatory for all teaching staff in medical colleges. MEUs have been established in every medical institution to conduct these training programs under the supervision of designated nodal and regional centers. The Revised Basic Course Workshop (RBCW) is the foundational training program, focusing on core areas such as adult learning principles, lesson planning, assessment techniques, and the integration of AETCOM competencies. The Curriculum Implementation Support Program (CISP) was introduced to specifically train faculty in the rollout of CBME; however, its limited duration and reach have been a significant barrier to widespread adoption. While the ACME provides a deeper, more structured engagement with medical education, its intensive nature means its benefits are limited to a small fraction of faculty, leaving a large portion of the teaching community without adequate training.[35,36]

Internationally, organizations like the FAIMER and the Association of American Medical Colleges (AAMC) offer fellowships and programs that focus on leadership, curriculum innovation, and global educational practices. These global models emphasize the importance of faculty as change agents and institutional leaders.[37,38]

Moving beyond a one-time activity, continuous faculty development is not merely a professional journey but a critical requirement for sustaining the CBME reform. Effective programs are essential for empowering medical educators to champion curricular changes, integrate ethical professionalism into all aspects of their teaching, and mentor the next generation of healthcare professionals to navigate a dynamic and complex healthcare landscape.

NEWER INNOVATIONS IN MEDICAL EDUCATION

Newer technologies and artificial intelligence have evolved the medical education in the modern era. Learning management system is the new normal for modern medical education. Various chatbots are programmed to understand, process and respond to human queries on specific question by retrieving information from the internet databases.[39] Intelligent tutoring systems can improve the medical education by developing the teaching course contents, addressing the strengths and gaps in the knowledge of students and developing the learning materials. Virtual patients have given a new paradigm in modern medical education by creating an interactive computer simulation of real-life scenarios.[40] It helps in professional training and education. Newer e-learning tools like – Moodle, Dropbox, Evernote, Kindle has evolved the learning opportunities of the students. In addition, incorporation of various AI tools like – Osmosis, Medtrics, Picmonic have added the knowledge. Not only there are tools for learning, various AI based assessment methods are also evolving like – optical mark recognition, automated essay scoring, simulated assessment etc. Mir et al in an article has described that AI can act as virtual enquiry system, medical distant learning and management.[41] The role of AI in medical education is going to evolve further in the near future. A systematic review by Tang et al have also told the role of newer technologies in the medical education by virtual reality, augmented reality, mixed reality, and extended reality.[42] Similar efficacy of AI has been shown in a study by Aggarwal et al where a graduated laparoscopic training by virtual reality simulation was found to be equivalent with the physical training of the laparoscopic surgeons.[43]

CHALLENGES IN IMPLEMENTING COMPETENCY-BASED MEDICAL EDUCATION (CBME) IN INDIA

The transition to CBME in Indian medical colleges has been met with enthusiasm but also significant implementation challenges. A major concern across institutions is the lack of adequately trained faculty, with

many educators unfamiliar with newer teaching methods, assessment tools, and the philosophy behind CBME. The current training programs, such as the Revised Basic Course Workshop and CISP, are often seen as insufficient in preparing faculty for the practical demands of CBME. Infrastructural gaps like the absence of well-equipped skills labs, inadequate space for small-group learning, and limited IT support further hinder smooth execution. Additionally, the increased workload and administrative burden especially due to documentation and continuous assessment have caused resistance among faculty. Assessment-related challenges such as limited expertise in OSCE/OSPE, lack of standard evaluation tools, and difficulty in delivering timely, structured feedback also emerged prominently. From the students' side, unclear understanding of new components like SDL and ECE, along with a perception of overload from logbooks and documentation, contributed to disengagement. Administrators pointed to lack of interdepartmental collaboration, dwindling attendance of the students, and rapid changes in regulations as critical barriers. Overall, despite its learner-centric intent, CBME's effective implementation demands coordinated efforts in faculty development, infrastructural upgrades, curriculum clarity, and better sensitization of all stakeholders.[24-44]

GOVERNMENT AND PRIVATE MEDICAL COLLEGES IN MEDICAL EDUCATION

Medical education in India is delivered through both government and private institutions, each with distinct advantages and challenges. Government medical colleges are often more affordable, with heavily subsidized tuition fees, making them accessible to a broader socioeconomic population. However, they typically face issues such as overcrowding, limited faculty, infrastructure constraints, and administrative delays.

In contrast, private medical colleges often have the financial autonomy to invest in modern infrastructure and facilities, but this comes at a significantly higher cost to students. The quality, however, can vary widely and is not always superior to well-established government institutions. The steep fees in private institutions often restrict access to students from affluent backgrounds or those securing loans, raising concerns about equity and the commercialization of medical education. The quality of education in these colleges varies widely, with some lacking adequate clinical exposure or experienced faculty. A major contributing factor to this disparity is a flawed accreditation process, which is often documentation-heavy and lacks a focus on continuous quality improvement, thereby enabling institutions with inadequate standards to continue operating.[45] The disparity in costs and resources between the two sectors poses challenges in standardizing medical education and ensuring uniform competency among graduates. Bridging this gap requires regulatory oversight, improved public investment, and greater accountability across both types of institutions.

NEET AND CHALLENGES IN THE SELECTION OF MEDICAL CANDIDATES

The National Eligibility cum Entrance Test (NEET) was introduced to standardize medical admissions across India, aiming to ensure transparency, merit-based selection, and uniformity. While NEET has streamlined the process and reduced discrepancies between state and institutional examinations, it has also brought several challenges.[46,47]

One major concern is the over-reliance on a single high-stakes exam, which often favors students from urban, well-resourced backgrounds who can afford intensive coaching. This creates a disadvantage for students from rural areas, vernacular mediums, and lower socioeconomic groups, leading to inequity in access. One of the major drawbacks of NEET is the issue with scoring, as even a minor difference in marks can significantly affect a student's rank and chances of admission, leading to increased stress and competition. Additionally, NEET assesses academic proficiency but does not evaluate essential qualities like empathy, communication skills, and ethical reasoning, which are crucial for future doctors. The growing dominance of coaching centres has also shifted focus from holistic learning to exam-centric preparation, sometimes undermining school education. Addressing these challenges calls for reforms such as including aptitude-based assessments, promoting inclusive preparation strategies, and ensuring better representation of diverse social and regional backgrounds in medical admissions.

PARALLEL AYUSH SYSTEMS AND THEIR CHALLENGES

India's healthcare landscape includes parallel systems of medicine under the AYUSH umbrella – Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy – offering a pluralistic approach to health. While these systems are institutionally supported with dedicated colleges, councils, and regulatory frameworks, they face several challenges in terms of integration, recognition, and quality of education.[48] A major issue is the lack of uniform standards across AYUSH institutions, with wide variability in curriculum quality, faculty training, and clinical exposure. Many AYUSH graduates struggle with inadequate hands-on experience and limited research opportunities. Moreover, there is minimal interdisciplinary collaboration between modern medicine and AYUSH, often leading to professional isolation and skepticism between systems.

Efforts to integrate AYUSH into mainstream healthcare have also raised concerns about scientific validation, regulatory overlap, and the risk of diluting core principles of both systems. To strengthen AYUSH education, there is a need for curriculum reform, research investment, evidence-based practice promotion, and structured collaboration with allopathic institutions - while respecting the distinct epistemologies of each system.[49]

CHALLENGES IN ACCREDITATION OF MEDICAL COLLEGES

Accreditation plays a critical role in ensuring quality and accountability in medical education, and in India, the NMC is the primary regulatory body responsible for setting these standards. However, despite its crucial function, the accreditation system has long been haunted by fraud and bribery. The link between the commercialisation of medical education and these corrupt practices is direct, with the practice of cuts and commissions having gained global notoriety.

Even after the establishment of the NMC, fraud and bribery continue to undermine the system. The very process meant to ensure that institutions meet benchmarks in infrastructure, faculty, and clinical exposure has become a focal point for corruption. Many institutions, particularly newer and private ones, struggle to consistently meet quality standards and resort to fraudulent documentation and practices to secure accreditation.

The accreditation process's reliance on periodic, documentation-heavy inspections rather than continuous, outcome-based monitoring makes it particularly vulnerable to such exploitation. This systemic flaw, combined with a lack of transparency and limited incorporation of student feedback, enables substandard institutions to operate, with a direct and detrimental bearing on the quality of education and the competency of students they produce. Moving forward, adopting international best practices like peer-review mechanisms and continuous monitoring is crucial not only to enhance the credibility of accreditation but to combat the deep-seated corruption that compromises the entire medical education system.[50]

CONCLUSION

While medical education in India has made significant strides in transitioning to a modern, competency-based framework, its evolution is an ongoing process marked by both progress and persistent challenges that must be addressed for its full potential to be realized. Post-independence reforms, particularly the introduction of CBME and the AETCOM modules, have modernized the curriculum, emphasizing holistic, patient-centred care. However, challenges such as the slow adoption of CBME and the need for faculty adaptation remain.

To further advance medical education, accelerating the widespread implementation of CBME, enhancing faculty development programs, and integrating advanced technologies like artificial intelligence and virtual simulations into both teaching and assessment are essential. Equally important is fostering leadership skills, alongside clinical competencies, to better prepare healthcare professionals to lead interdisciplinary teams and healthcare systems. Additionally, maintaining a strong focus on ethical and communication training through the AETCOM module will equip future professionals to navigate the complexities of modern practice, ensuring they provide compassionate, effective, and leadership-driven care.

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