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COMPETENCY -BASED MEDICAL EDUCATION : A GLOBAL PERSPECTIVE

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ABSTRACT

Competency-Based Medical Education (CBME) represents a transformative approach to medical training that prioritizes learner outcomes over time-based progression. Rooted in clearly defined competencies and milestones, CBME seeks to ensure that medical graduates are equipped with the essential skills, attitudes, and knowledge to meet evolving societal and healthcare needs. This narrative review explores the conceptual foundations of CBME, its global implementation across diverse regions including North America, Europe, Asia, Africa, and Latin America, and the challenges and innovations associated with its adoption. The paper further highlights best practices and outlines future directions for sustaining and refining CBME globally. While promising strides have been made, especially in high-income countries, successful implementation in resource-constrained settings demands greater investment in faculty development, infrastructure, and policy alignment. With continued collaboration and context-sensitive adaptation, CBME has the potential to produce socially accountable, competent, and adaptable physicians worldwide.

INTRODUCTION

Competency-Based Medical Education (CBME) offers a results-oriented approach that integrates various aspects of medical teaching, such as instructional methods and assessment strategies, within a competency framework. With this goal at its foundation, the Medical Council of India (MCI), in collaboration with a national panel of experts, established the foundational structure for the revised undergraduate medical curriculum. Over the past four years, a dedicated team of medical professionals from the MCI Reconciliation Board expanded this framework into a comprehensive document. This document outlines suitable teaching-learning methods, instructional tools, and assessment techniques, ultimately shaping the current competency-based undergraduate medical curriculum.[1] The principles of Competency-Based Medical Education (CBME) gradually gained global acceptance, prompting medical education programs across various countries to adopt and tailor them to their specific contexts. This widespread implementation resulted in the creation of diverse competency frameworks and assessment methodologies suited to different healthcare systems and educational needs.[2-4]

Aim and Scope of the Review

This narrative review seeks to explore Competency-Based Medical Education (CBME) as an evolving model of undergraduate medical training, emphasizing its foundational concepts, global development, and practical implementation—particularly within the Indian context.

The review outlines the origins and educational theories that have influenced CBME, discusses internationally recognized frameworks such as CanMEDS and ACGME, and highlights the efforts made by the Medical Council of India (now the National Medical Commission) to design and adopt a competency-based curriculum for medical graduates. It further examines the fundamental features of CBME, including its student-focused approach, structured competency domains, innovative teaching-learning strategies, and diverse assessment techniques. Additionally, the review addresses common barriers encountered during implementation and identifies areas for improvement

Historical Background and Early Influences

Competency-Based Medical Education (CBME) emerged in the 1970s as a response to the limitations of traditional, time-based medical education. Influenced by outcome-based education and adult learning theories, it emphasized what learners are

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able to do in practice rather than how long they train.[5,6]

The World Health Organization supported early CBME efforts by promoting curricula aligned with population health needs.[2] This led to the development of key frameworks such as the ACGME Core Competencies in the USA and the CanMEDS framework in Canada, both of which set global standards for defining and assessing physician competencies.[2,7-9]

The evolution of Competency-Based Medical Education (CBME) has been shaped by a variety of early influences that contributed to its conceptual foundation and global adoption. Philosophical underpinnings such as adult learning theory, experiential learning models, and Bloom's taxonomy provided the initial pedagogical direction.[7,8] Internationally, frameworks like the CanMEDS model in Canada and the ACGME core competencies in the United States played a pivotal role in shifting focus from traditional, time-based education to outcome-driven approaches.[9]

In the Indian context, the movement toward CBME was influenced by growing recognition of the limitations of the conventional medical curriculum, which often emphasized memorization over clinical relevance and failed to adequately prepare graduates for real-world healthcare challenges.[10] National health priorities—especially the need for medical professionals capable of addressing rural and public health issues—further highlighted the urgency for curriculum reform.[11] Additionally, global standards established by the World Federation for Medical Education (WFME) inspired alignment with internationally accepted benchmarks.[12]

Early initiatives by the Medical Council of India (MCI), including faculty development programs, expert consultations, and pilot implementations in select institutions, laid the groundwork for a structured transition to CBME. These efforts reflected a broader understanding that meaningful medical education must not only impart knowledge but also ensure the acquisition of skills, attitudes, and professional values essential for competent clinical practice.[13,14]

Global Perspectives on CBME

The adoption of Competency-Based Medical Education (CBME) has gained momentum globally, with several countries developing structured frameworks to define and assess medical competencies. In Canada, the CanMEDS framework identifies seven essential physician roles—including medical expert, communicator, and health advocate—forming the basis for training and assessment across specialties.[2] The United States implemented the ACGME Core Competencies, which focus on six domains, such as patient care, professionalism, and systems-based practice, to ensure consistent outcomes across residency programs.[9] On a broader scale, the World Federation for Medical Education (WFME) established global standards for medical education that emphasize outcome-based learning, social accountability, and continuous quality improvement, encouraging international alignment in competency expectations.[12]

Countries like the United Kingdom and Australia have also integrated CBME principles into their national medical curricula. The UK's General Medical Council (GMC) outlines clear outcomes for graduates, emphasizing skills, attitudes, and professional behaviors,[15] while Australia's Medical Deans have incorporated graduate outcome statements focusing on clinical reasoning, patient-centered care, and ethical practice.[16] These initiatives reflect a global shift toward producing healthcare professionals who are not only clinically competent but also responsive to the needs of the populations they serve.

Emergence of CBME in India

In India, the shift toward Competency-Based Medical Education (CBME) was driven by the recognition that the traditional curriculum overemphasized rote learning and failed to equip graduates with practical skills and professional competencies needed for real-world healthcare challenges. To address these gaps, the Medical Council of India (MCI) initiated curriculum reform through its Vision 2015 document, advocating for an outcome-driven, patient-centered approach to medical training.[17] This vision laid the groundwork for the development of a structured CBME framework. With further refinement and expert consultations, the Competency-Based Undergraduate Curriculum was formally introduced in 2018, aiming to produce Indian Medical Graduates who are competent, ethical, and responsive to community health needs.[13]

Core Principles of CBME

CBME is founded on clearly defined competencies that articulate the knowledge, skills, attitudes, and behaviors a medical graduate must demonstrate in clinical practice.[2] These competencies are structured across domains and mapped through developmental milestones and Entrustable Professional Activities (EPAs), which indicate progressively increasing levels of responsibility.[4] The model emphasizes a learner-centered approach, promoting active engagement, self-directed learning, and accountability for performance.[18] A defining feature of CBME is the continuum of medical education, spanning undergraduate, postgraduate, and continuing professional development, ensuring lifelong competency maintenance.[19]

Implementation Strategies

Effective CBME implementation requires alignment of teaching-learning methods with competency goals. These include small group discussions, self-directed learning (SDL), early clinical exposure, and integration of basic and clinical sciences to foster applied understanding.[13] Assessment is both formative and summative, utilizing tools like workplace-based assessments (WPBA), objective structured clinical examinations (OSCEs), and reflective portfolios to evaluate real-world

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competence.[20] Crucially, faculty development and institutional preparedness are key to sustaining CBME, requiring investment in teacher training, resource development, and organizational restructuring.[21]

Challenges and Barriers

The implementation of CBME faces multiple challenges. A major barrier is faculty resistance, often due to unfamiliarity with the CBME model and insufficient training in new teaching and assessment methods.[22] Infrastructure limitations, such as lack of clinical exposure settings, simulation labs, and small group spaces, further constrain effective delivery.[23] Concerns about the validity and reliability of assessments, especially workplace-based evaluations, also pose difficulties in ensuring consistent and fair judgments of student performance.[20] Additionally, students often struggle to adapt to the increased workload and self-directed learning expectations, leading to stress and disengagement if not adequately supported

Impact and Current Status

Since its implementation, CBME has shown mixed outcomes globally. In India, early phases of rollout have revealed positive shifts in student engagement, clinical reasoning, and early exposure to patient care, although challenges in faculty training and assessment standardization persist.[24] Globally, countries like Canada and the USA report improved learner accountability and alignment of training with real-world competencies through frameworks like CanMEDS and ACGME.[2] Key lessons include the need for phased implementation, continuous faculty development, and robust assessment systems. Institutions that have adopted reflective practices, used data-driven feedback, and adapted to local contexts have demonstrated better integration and acceptance of CBME.[21]

Future Directions

The future of CBME lies in leveraging technology-enhanced learning, such as e-learning platforms, virtual simulations, and AI-based assessments, to personalize education and improve skill acquisition.[25] There is an ongoing need to refine the curriculum through continuous feedback loops from students, faculty, and health system needs, ensuring relevance and adaptability.[26] Additionally, advancing educational research and rigorous program evaluation is essential to validate CBME outcomes, identify best practices, and inform policy decisions across diverse healthcare and academic contexts.[27]

CONCLUSION

CBME represents a paradigm shift from traditional, time-based education to an outcome-oriented, learner-centered model, emphasizing clearly defined competencies, real-world clinical relevance, and lifelong learning.[2] Its core principles—competency mapping, progressive milestones, EPAs, and continuous assessment—form the foundation for training more competent, ethical, and responsive medical professionals. While implementation challenges persist—such as faculty readiness, infrastructure, and assessment design—early experiences from India and globally demonstrate promising impact when supported by institutional commitment and ongoing refinement.[24,27] Moving forward, integration of technology, curriculum adaptability, and robust evaluation will be essential in unlocking CBME's full potential to transform medical education for future healthcare needs.

REFERENCES

1. Competency Based Undergraduate Curriculum. Medical Council of India. Competency Based Undergraduate Curriculum for the Indian Medical Graduate. Vol 3, 2018. Available from: https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-III.
2. Frank JR, Snell LS, Cate OT, et al. Competency-based medical education: theory to practice. Med Teach. 2010;32(8):638–45.
3. Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. Acad Med. 2013;88(8):1088–94.
4. ten Cate O. Competency-based postgraduate medical education: Past, present and future. GMS J Med Educ. 2017;34(5):Doc69.
5. Harden RM, Crosby JR, Davis MH. AMEE Guide No. 14: Outcome-based education: Part 1. Med Teach. 1999;21(1):7–14.
6. McGaghie WC, Miller GE, Sajid AW, Telder TV. Competency-based curriculum development in medical education: An introduction. Geneva: WHO; 1978.
7. Knowles MS. The Modern Practice of Adult Education: From Pedagogy to Andragogy. Englewood Cliffs, NJ: Cambridge Adult Education; 1980.
8. Kolb DA. Experiential Learning: Experience as the Source of Learning and Development. Englewood Cliffs, NJ: Prentice Hall; 1984.
9. Accreditation Council for Graduate Medical Education. ACGME Common Program Requirements. Chicago: ACGME; 2013.
10. Medical Council of India. Vision 2015. New Delhi: MCI; 2011.
11. Rao KD, Bhatnagar A, Berman P. So many, yet few: Human resources for health in India. Hum Resour Health. 2012;10:19.
12. World Federation for Medical Education. Basic medical education: WFME global standards for quality improvement. WFME; 2015.
13. Medical Council of India. Competency-Based Undergraduate Curriculum for the Indian Medical Graduate. Vol. 1–3. New Delhi: MCI; 2018.
14. Shankar PR. Competency-based medical education in India: Are we ready? J Educ Health Promot. 2021;10:123.
15. General Medical Council. Outcomes for Graduates 2018. London: GMC; 2018.
16. Medical Deans Australia and New Zealand. Graduate Outcome Statements for Medical Education. Sydney: Medical Deans ANZ; 2017
17. Medical Council of India. Vision 2015. New Delhi: MCI; 2011.
18. Gruppen LD, Burkhardt JC, Fitzgerald JT, et al. Competency-based education: programme design and challenges to implementation. Med Educ. 2016;50(5):532–9.
19. Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. Acad Med. 2013;88(8):1088–94

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International Journal of Academic Medicine and Pharmacy (www.academicmed.org)
ISSN (O): 2687-5365; ISSN (P): 2753-6556

20. Norcini J, Burch V. Workplace-based assessment as an educational tool: AMEE Guide No. 31. Med Teach. 2007;29(9–10):855–71.
21. Tekian A, Watling CJ, Roberts TE, Steinert Y, Norcini J. Preparing health professions education leaders worldwide: A description of the FAIMER Institute fellowship. Med Teach. 2014;36(5):409–15.
22. Dandekar A, Bansal R, Kirpekar VC. Faculty perceptions and readiness toward CBME implementation. J Educ Health Promot. 2020;9:327.
23. Bhatti S, Sood R. Challenges in implementation of CBME: A faculty perspective. Indian J Med Spec. 2021;12(3):123–6.
24. Giri PA, Phalke DB. Experience and perceptions of Indian faculty regarding CBME implementation. J Educ Health Promot. 2021;10:1
25. Ellaway RH, Topps D. Virtual patients and real learning: The need for clinically meaning ful outcomes. Acad Med. 2010;85(5):677–82.
26. Gruppen LD, Burkhardt JC, Fitzgerald JT, et al. Competency-based education: programme design and challenges to implementation. Med Educ. 2016;50(5):532–9.
27. Iobst WF, Sherbino J, Cate OT, et al. Competency-based medical education in postgraduate medical education. Med Teach. 2010;32(8):651–6.

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